CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

ORDER NO. R9-2009-0004
FOR
GREGORY CANYON LTD.
PROPOSED GREGORY CANYON LANDFILL
SAN DIEGO COUNTY

TECHNICAL REPORT

2009

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Draft Technical Report

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INTRODUCTION

The purpose of this Technical Report is to summarize information and technical analyses the California Regional Water Quality Control Board, San Diego Region (Regional Board) relied upon in developing the findings and directives in tentative Order No. R9-2009-0004, *Waste Discharge Requirements for Gregory Canyon Ltd., Gregory Canyon Landfill, San Diego County*.

The proposed Gregory Canyon Landfill is a new municipal solid waste (MSW) landfill (Class III waste management unit). The facility is subject to both state (California Code of Regulations – CCR Title 27) and federal (Code of Federal Regulations – CFR, Title 40, Part 258) requirements regulating municipal solid waste (MSW) landfills. In 1993, the State Water Resources Control Board (SWRCB) adopted Resolution No. 93-62 that requires each Regional Board to implement waste discharge requirements (WDRs) for discharges at MSW landfills under both the Chapter 15 (now CCR Title 27 - as of 1997) and those applicable provisions of the federal MSW regulations (CFR Title 40, Part 258) that are necessary to protect water quality.

On August 16, 1993, the Regional Board adopted General Order 93-86: "*Waste Discharge Requirement Amendment for all MSW Landfills in this Region, to Implement State Water Board Resolution No. 93-62, adopted June 17, 1993,"* as State Policy for Water Quality Control under Section 13140 of the Water Code." This interim measure was taken to ensure that all active MSW landfills would be required to comply with the existing federal requirements for MSW landfills. Order No. 93-86 is applicable to all MSW landfills that accept waste after October 1, 1991 including the Gregory Canyon Landfill.

Tentative Order No. R9-2009-0004 contains both state and federal MSW landfill requirements. If adopted, tentative Order No. R9-2009-004 will establish waste discharge requirements for the proposed Gregory Canyon Landfill.

BACKGROUND

In November 1994, the voters of San Diego County approved Proposition C, the Gregory Canyon Landfill and Recycling Collection Center Ordinance. By amending the County of San Diego's General Plan and Zoning Ordinance, Proposition C allows for the construction and operation of a Class III landfill and recycling collection center on this site, provided that operator can secure all the necessary permits.

Gregory Canyon Ltd. (the "*Discharger*") initiated the permit process by completing the California Environmental Quality Act (CEQA) process. The County of San Diego (the County) approved a final Environmental Impact Report (EIR) on February 6, 2003. However, the County's approval of the final EIR was overturned by the Superior Court as the result of a lawsuit filed by Riverwatch, the City of Oceanside and the Pala Band of Mission Indians[1] on January 20, 2006. The County began working to correct the deficiencies, as identified by the Court, in the final EIR, and circulated a Revised Partial EIR for public review and comment on July 13, 2006.

The Regional Board Executive Officer indicated previously (Regional Board meeting on June 14, 2006) that compliance with CEQA is required before the Regional Board will schedule an agenda item where the Regional Board may consider adoption of the tentative Order. The County of San Diego certified the Revised Partial EIR on May 31, 2007.

However, on February 11, 2008, the San Diego Superior Court issued a decision in Riverwatch v. County of San Diego Department of Environmental Health. The environmental analysis for the water supply (related to the use of reclaimed water) was found to be incomplete. The decision required additional environmental analysis for the use of reclaimed water.

In response to the Court's order, the LEA staff performed an additional environmental analysis for the use of reclaimed water. Baseline recycled water supply and use conditions were determined, and scenarios that added the Gregory Canyon Landfill to that baseline were defined and quantified. The impacts from recycled water deliveries to the landfill site on other Olivenhain Municipal Water District (OMWD) recycled water customers were then determined as required by the Court's order. The results of this analysis can be found in the Addendum to the Certified Final Environmental Impact Report (Recycled Water Addendum).

The Recycled Water Addendum concludes that there is adequate recycled water to meet the demands of OMWD's existing customers or existing uses of recycled water after including deliveries to the landfill site, and that the OMWD is able to provide 193 acre feet per year (AFY) of recycled water to the landfill site without causing a significant impact to its existing customers or existing uses of recycled water. Based on this information presented in the Recycled Water Addendum,

[1] On January 20, 2006, the Superior Court issued final ruling (Preemptory Writ of Mandate for Case GIN038227) identifying deficiencies in several parts of the existing Environmental Impact Report (EIR) prepared for the proposed project. As of that date, the existing CEQA EIR became defunct.

no significant environmental impacts that were not identified in the 2003 FEIR or the Revised FEIR would result, and no previously identified significant impacts would be substantially more severe in light of this analysis.

On August 8, 2008 Gary Erbeck, as the Director of the San Diego County Local Enforcement Agency issued a *Decision* which adopted the Recycled Water Addendum.

On November 20, 2008, the San Diego Superior Court Judge Dahlquist determined that the Recycled Water Addendum adequately addressed issues regarding the use of reclaimed water. Judge Dahlquist decided to dissolve the Peremptory Writ that was placed on the EIR for this project on January 20, 2006. Therefore, the CEQA process is complete for the proposed Gregory Canyon Landfill.

WASTE DISCHARGE REQUIREMENTS (WDRS)- BASIS FOR FINDINGS AND DIRECTIVES

Findings are determinations of fact supporting the adoption of the Order. As described in the SWRCB Administrative Procedures Manual findings consist of: name of the discharge; description of the waste discharger, the location of the discharge and waste treatment process; address the Water Quality Control Plan, including water quality objectives and beneficial uses of the receiving water, any applicable state water protection policies, CEQA and any public notice and/or public hearing requirements.

The basis for **Finding 1** identifying Gregory Canyon Limited as the **Discharger** is Joint Technical Document (JTD), Volume 1, A.2.2, page A.2-3.

The basis for **Finding 2** identifying the **facility location** is Joint Technical Document, Volume 1, B.1.3, page B.1-3

The basis for **Finding 3** describing the **types of wastes** proposed to be disposed at the Gregory Canyon Landfill is JTD, Volume 1, Section B.1.5, page B.1-4.

The basis for **Finding 4** regarding **waste characterization** is JTD, Volume 1, Sections B.1.5.3 and B.1.5.4, pages B.1-7 through B.1-10. The JTD asserts that municipal solid wastes, and their degradation products (e.g., landfill gases), contain a wide variety of inorganic and organic constituents in concentrations that present a significant threat to water quality. The JTD anticipates the waste will have the following characteristics:

1. The presence of a number of chlorinated aliphatic and aromatic organic compounds (volatile organic compounds or VOCs), including: tetrachloroethene (PCE), trichloroethene (TCE), isomers of dichloroethene (DCE), and dichloroethane (DCA), vinyl chloride, and aromatic compounds such as benzene, toluene, ethylbenzene, xylenes (collectively known as BTEX compounds).

2. VOCs exist in the dissolved phase within the leachate and normally do not form immiscible layers that can be identified in the aquifer.

3. The waste will generate landfill gas (LFG) from the decomposition of the wastes in the Unit. The JTD (page B.1-9) presents a "typical" landfill gas composition for MSW landfills. The Regional Board staff also reviewed other published information (Tchobanoglous *et al.*, 1993: pages 382 to 384) to compare and augment the information presented in the JTD. This comparison is summarized as follows:

	Percentage (%) Landfill Gas	
Landfill Gas Components	**JTD [a]**	**Tchobanoglous [b]**
Methane	40 – 50	45 – 60
Carbon dioxide	30 – 45	40 – 60
Nitrogen	10 – 25	2 – 5
Oxygen	0 – 5	0.1 – 1
Hydrogen	0 – 1	0 – 0.2
Heavier hydrocarbons [c]	1,000 – 1,500	NR
Miscellaneous [c]	200 – 3,000	NR
Sulfides, disulfides, mercaptans, etc.	NR	0 – 1
Ammonia	NR	0.1 – 1
Carbon monoxide	NR	0 – 0.2
Trace constituents	NR	0.01 – 0.6

NR = category not reported by reference
a = data from JTD (page B.1-9)
b = data from Tchobanoglous et al., 1993 (pages 382 to 384)
c = JTD reports the units in parts per million or ppm.

Further, Tchobanoglous *et al.*, 1993: (pages 384: Table 11-4) includes more complete description of *"Trace constituents"* category derived from a survey of 66 California municipal solid waste landfills, as:

	Concentration in ppbV [a]		
Compound	**Median**	**Mean**	**Maximum**
Acetone	0	6.8	24,000
Benzene	932	2,057	39,000
Chlorobenzene	0	82	1,640
Chloroform	0	245	12,000
1,1 – Dichloroethane (DCA)	0	2,801	36,000
Dichloromethane	1,150	25,694	620,000
1,1 – Dichloroethene (DCE)	0	130	4,000
Diethyl chloride	0	2,835	20,000
trans- 1, 2- Dichlorethane (DCA)	0	36	850
Ethylene dichloride	0	59	2,100
Ethyl benzene	0	7,334	87,500
Methyl ethyl ketone (MEK)	0	3,092	130,000
1,1,1- Trichloroethane (TCA)	0	615	14,500
Trichloroethylene	0	2,079	32,000
Toluene	8,125	34,907	280,000
1,1,2,2 - Tetrachloroethane	0	246	16,000
Tetrachloroethylene (PCE)	260	5,244	180,000
Vinyl chloride	1,150	3,508	32,000
Styrenes	0	1,517	87,000
Vinyl acetate	0	5,663	240,000
Xylenes	0	2,651	38,000

a = parts per billion by volume

Finding 5 identifies the **state and federal codes and regulations** being applicable to the requirements prescribed in this Order.

The proposed Gregory Canyon Landfill is a new MSW landfill (Class III waste management unit). The facility is subject to both federal (Code of Federal Regulations – CFR, Title 40, Part 258) requirements regulating MSW landfills and state (California Code of Regulations – CCR Title 27) and applicable provisions of the California Health and Safety Code, Division 20, Chapter 6.5 (Hazardous Waste Control).

Federal Resource Conservation and Recovery Act (RCRA)

Municipal solid waste landfills accepting wastes after October 9, 1991 are subject to the federal regulations found in the CFR, Title 40 Part 258. These federal regulations implement the statutory requirements of the Resource Conservation

and Recovery Act (RCRA) – Subtitle D. The federal regulations contain applicable requirements for siting, construction, operation, closure, and water quality monitoring of MSW landfills.

Each state must "...adopt and implement a permit program or other system of prior approval and conditions to assure that each...[MSW landfill]...within such state...will comply with the...[federal MSW landfill regulations]." State regulations promulgated to satisfy this requirement are subject to approval by USEPA (Solid Waste Disposal Act §4003 and §4005; Title 42 US Code §6943 and §6945). The cited federal regulations may be accessed on-line at: http://www.gpoaccess.gov/cfr/index.html.

California Code of Regulations, Title 23 and 27 and SWRCB Resolution No. 93-62

After November 27, 1984, discharges of non-hazardous and hazardous wastes to land were regulated by the Regional Boards pursuant to CCR Division 3, Chapter 15 (a.k.a. "*Chapter 15*"). The regulatory requirements of Chapter 15 were implemented by the Regional Boards through adoption of WDRs pursuant to California Water Code §13263 *et. seq*. Subsequent to the implementation of Chapter 15 by the SWRCB/Regional Boards, the state Legislature created additional state agencies that promulgated additional regulations to control disposal of wastes to land:

- CCR Title 14, Division 7 for discharges of non-hazardous solid wastes to land (administered by the California Integrated Waste Management Board).

- CCR Title 22, Division 4.5 for discharges of hazardous wastes to land (administered by the Department of Toxic Substances Control).

In 1993, the legislature passed AB 1220 *"The Solid Waste Disposal Regulatory Reform Act of 1993."* That act amended the California Public Resources Code (PRC §43100 and §43101) requiring the SWRCB and the California Integrated Waste Management Board (CIWMB) to jointly develop a plan for implementing reform of the existing State requirements [previously included separately under CCR Title 14, Division 7 (CIWMB) and CCR Title 23, Division 3, Chapter 15 (SWRCB)] regulating discharges of "non-hazardous solid wastes" to land.

Implementation of the statutory requirements of PRC §43101 resulted in the SWRCB and CIWMB promulgating CCR – Combined SWRCB/CIWMB Regulations Divisions 2, Title 27 (CCR Title 27). After July 18, 1997, the regulatory requirements of CCR Title 27 became the applicable requirements for regulating discharges of non-hazardous wastes to land. CCR Title 27 contains applicable prescriptive regulatory requirements for the design, operation, and environmental monitoring at the proposed Gregory Canyon Landfill. Water Code §13243 gives the Regional Board's authority to implement the referenced requirements in WDRs. The cited/applicable state regulations may be accessed on-line at: http://www.calregs.com/linkedslice/default.asp?SP=CCR-1000&Action=Welcome *State Water Resources Control Board Resolution 93-62*

On June 17, 1993, the SWRCB adopted Resolution No. 93-62:"*Policy for Regulation of Discharges of Municipal Solid Wastes.*" SWRCB Resolution No. 93-62 amended CCR Title 23, Chapter 15 regulations to be consistent with the applicable federal requirements found in Code of Federal Regulations (CFR) Title 40, Part 258. Resolution No. 93-62 requires the Regional Boards to take a number of actions, including:

a. Implement both the Chapter 15 regulations and those applicable provisions of the Federal MSW regulations in WDRs for discharges at MSW landfills, that are necessary to protect water quality, particularly the containment provisions stipulated in Section III of Resolution No. 93-62, and the provisions identified in Attachment I to that Policy,

b. Revise existing WDRs to accomplish this according to the schedule provided in Section II of Resolution No. 93-62; and

To comply with Resolution No. 93-62, the Regional Board adopted General Order 93-86: "*Waste Discharge Requirement Amendment for all MSW Landfills in this Region, to implement State Water Board Resolution No. 93-62, Adopted June 17, 1993, As State Policy for Water Quality Control under Section 13140 of the Water Code.*" All existing active MSW landfills, located within the San Diego Region, were enrolled in Order 93-86. The Regional Board has terminated enrollment of affected MSW landfills as their WDRs were updated in compliance with Resolution No. 93-62.

The SWRCB Chapter 15 regulations were comparable to the federal MSW regulations. Nevertheless, the USEPA identified several areas of Chapter 15 regulations which are not adequate to ensure compliance with certain provisions of the federal MSW regulations, as summarized in Attachment I to SWRCB Resolution No. 93-62.

California Health and Safety Code, Division 20, Chapter 6.5

Sections 25143.1.5 and 25150.7 of the California Health and Safety Code were amended in 2004 specifying conditions whereby treated wood waste may be discharged into a composite lined portion of a solid waste landfill unit equipped with an engineered alternative liner and leachate collection and removal system.

"Treated wood," means wood that has been treated with a chemical preservative for the purposes of protecting wood against insects, microorganisms, fungi, and other environmental conditions that can lead to decay of the wood and the chemical preservative is registered pursuant to the federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. Sec. 136 and following). This may include but is not limited to waste wood that has been treated with chromated copper arsenate (CCA), penta-chlorophenol, creosote, acid copper chromate (ACC), ammoniacal copper arsenate (ACA), ammoniacal copper zinc arsenate (ACZA), or chromated zinc chloride (CZC).

Treated wood waste, previously treated with a preservative that has been removed from electric, gas, or telephone service, and does not include wood waste that is subject to regulation as a hazardous waste under the federal act.

Treated wood must be managed to ensure consistency with Sections 25143.1.5 and 25150.7 of the Health and Safety Code and if a verified release is detected from the cell unit where treated wood is disposed, the disposal of treated wood will be terminated at the unit with the verified release until corrective action ceases the release.

The California Health and Safety Code (CHSC) §25143.1.5, defines "wood wastes" as including:

- poles, cross arms, pilings, fence posts, lumber, support timbers, flume lumber, and cooling tower lumber.

- Any wood waste, previously treated with a preservative, that has been removed from electric, gas, or telephone service, is exempt from the requirements provided those wood wastes are not subject to regulation as a hazardous waste under the federal act.

Further, CHSC §25143.1.5 allows the affected wood wastes to be disposed of in a composite-lined portion of a municipal solid waste landfill, that meets the requirements imposed by the state policy adopted pursuant to Section 13140 of the Water Code and regulations adopted pursuant to Sections 13172 and 13173 of the Water Code. However, the solid waste landfill used for disposal must authorized to accept the wood waste under WDRs issued by the Regional Board pursuant to Division 7 (commencing with Section 13000) of the Water Code.

To comply with the statutory requirements, the applicable requirements have been cited in the **Findings** and added to the **Discharge Specifications for Specific Types of Waste C.1** of the tentative Order for the proposed Gregory Canyon Landfill.

The basis for **Finding 6** regarding **local hydrogeology** is JTD, Volume 1, Section D.4, pages D.4-1 through D.4-20.

The geologic units in the area of the proposed landfill footprint form three potentially distinct aquifer types: alluvial, weathered bedrock and unweathered fractured bedrock aquifers.

Near the mouth of the canyon the unconsolidated sands and gravels make up the alluvial aquifer. The California Department of Conservation, Division of Mines and Geology (CDMG) (2000) map identifies an area on the west side of the canyon mouth where there is a contact between two rock types: the tonalite-undivided and the quartz bearing diorite. Here the groundwater water flow boundary identified by the JTD makes a sharp westerly turn from its northerly direction. This flow boundary appears to coincide with the contact between the two different rock types, which may significantly influence the direction of groundwater flow in a previously unpredicted manner.

Based upon the Geologic Map of the Pala 7.5' Quadrangle, San Diego County, California, prepared by the CDMG and the United States Geological Survey

(ftp://ftp.consrv.ca.gov/pub/dmg/rgmp/Prelim_geo_pdf/pala.pdf, 2000); at the mouth of the canyon there is alluvium and a small exposure of tonalite-undivided lithology, which forms a curved contact with the adjacent quartz bearing diorite that continues up into the canyon. Farther up the canyon (south), the geologic units include: Tonalite of Couser Canyon, Granodiorite of Indian Mountain, quartz bearing diorite, tonalite-undivided and metagranitic rocks. The Tonalite of Couser Canyon includes "lineaments" (indications of fractures) and an abundance of pegmatitic dikes (igneous rocks formed by intrusive magmas that rise into existing fractures or by creating new cracks, cutting across the pre-existing rock).

The JTD identifies the same geologic units as: alluvium and colluvium deposits, Indian Mountain Leucogranodiorite (LGD), Bonsall Tonalite and metamorphic rocks. The contact between the Indian Mountain LDG and the metamorphic rocks contains dikes. The Bonsall Tonalite is characterized by having numerous LGD dikes. These dikes include fine-grained aplites and coarse-grained pegmatite dikes.

The bedrock geology of Gregory Canyon is complicated by a number of geologic units and structural elements (including fractures, joints, and dikes).

The JTD identifies weathered granitic bedrock as lying directly below the thin veneer of alluvial/colluvial cover in the area of the proposed landfill footprint. This constitutes the weathered bedrock aquifer. The groundwater flow direction identified in the JTD is generally north towards the San Luis Rey River, until it makes an abrupt westerly turn near the mouth of Gregory Canyon.

The deepest aquifer that underlies the proposed landfill footprint is an unweathered fractured bedrock aquifer. This is a system of fractured granitic crystalline rocks. A fractured bedrock aquifer is unique in that it does not behave as a porous medium with groundwater flowing essentially horizontally from uphill to downhill. Instead groundwater flow is directed by the fractures, and cannot be predicted by horizontal flow directions (Huntley, 1993b). The development of fractures in bedrock may be caused by a number of factors, which may include tectonic stresses, pressure relief caused by erosion, or during cooling of the rock itself (Fetter, 1994). Therefore, the location and orientation of fractures may be unpredictable and it can be difficult to accurately identify all of the fracture zones affecting groundwater flow direction (Huntley, 1993b) and/or conveying significant volumes of groundwater. Besides the occurrence of fractures, dikes and contacts between different rock types may also create preferential pathways that act as groundwater conduits and influence groundwater flow in ways that are extremely difficult to predict with confidence.

The JTD characterizes the groundwater flow in the unweathered bedrock aquifer as a fracture controlled, interconnected flow system and is distinguished from the weathered bedrock aquifer. Textbook definitions suggest that the fractured bedrock and the weathered bedrock should be treated as two distinct aquifers (Fetter, 1994). Fractured bedrock can have high-yield wells, however porosity can range from 1.24% to 2.15 %. Depending on the degree of weathering, weathered bedrock can behave much differently than fractured bedrock with porosities of 40% to 50% (Fetter, 1994).

The technical literature indicates that properly designed aquifer tests should be performed using wells that are exclusively screened within each of the aquifers separately (Fetter, 1994). Wells screened across more than one aquifer will give ambiguous data because the contributions from each of the aquifers cannot be quantified under such conditions. Additionally, to characterize groundwater flow in fractured bedrock systems wells used in the aquifer test(s) need to be screened along the same fractures to ensure the data is representative of aquifer conditions, and not bias the results towards low permeabilities which could incorrectly under estimate the risk to down gradient receptors (Huntley, 1993a).

The basis for **Finding 7** regarding local domestic and municipal water supply wells is JTD pages D.5-14 to D.5-17, Figure 30A, and Table 12D.

The basis for **Finding 8** regarding **compliance with federal siting requirements** is the Subtitle D Checklist contained in JTD, Volume II, Appendix A.

The USEPA promulgated federal regulations implementing RCRA Subtitle D as subpart 257 and 258 of Title 40 in the CFR for public and private landfills receiving municipal solid waste (see explanation of **Finding 4** of this Order). These regulations set minimum federal standards for design, operation, location, monitoring, closure and post-closure of municipal solid waste or "MSW" (*i.e.,* nonhazardous waste) landfills. The cited/applicable federal regulations may be accessed on-line at http://www.gpoaccess.gov/cfr/index.html.

The Discharger submitted a Subtitle D checklist to document compliance with the federal regulations. Subtitle D contains location restrictions for new landfills as follows:

a. 100-year Floodplain (CFR Title 40 §258.11)

Page 2 of the Subtitle D Checklist indicates that the Gregory Canyon landfill footprint and borrow/stockpile areas are not located within the 100-year floodplain.

b. Wetlands (CFR Title 40 §258.12(a))

Page 2 of the Subtitle D Checklist indicates that the Gregory Canyon Landfill footprint is not located in wetlands.

c. 200' Setback from a Holocene Fault (40CFR §258.13(a))

Page 3 of the Subtitle D Checklist indicates that indicates the closest fault to the Gregory Canyon Landfill is an east-northeast trending fault located by Jahns and Wright (1951). The Jahns and Wright fault is the only nearby fault depicted in the 1994 Fault Activity Map of California (Jennings, 1994) and it does not show evidence for Cenozoic displacement (i.e., it is an inactive fault).

d. Containment Structures Withstand Maximum Horizontal Acceleration (40 CFR §258.14(a))

The JTD contains a slope stability analysis that indicates that the containment structures, including liners, leachate collection and removal systems and surface water controls are designed to withstand the maximum horizontal acceleration (estimated at 0.4g) associated with the Maximum Credible Earthquake.

e. Unstable Area (CFR Title 40 §258.15(a))

Page 3 of the Subtitle D Checklist indicates that the Gregory Canyon Landfill is not located in an unstable area as defined by the federal regulations.

The basis for **Finding 9** regarding the **classification** of the Gregory Canyon Landfill as a Class III Waste Management Unit (WMU) is JTD, Volume I, Section B.1.5.2, pages B.1-5 to B.1-7.

The siting criteria listed in CCR Title 27 §20260 and associated sections of CFR Title 40, Part 258 are discussed/evaluated in a number of areas of the JTD:

Section B.1 (pages B.1-1 to B.1-4); Section C.1 (pages C.1-1 to C.1-3); Section D.2.3 (pages D.2-1 and D.2-2); D.3.2 (pages D.3-1 and D.3-2); Section D.4.4 (pages D.4.13 to D.4-16); Section D.4.5 (pages D.4-15 and D.4-16); Section D.4.7 (pages D.4-20 to D.4-23); Section D.5.1.2 (pages D.5-5 to D.5-8); Section D.5.2 (pages D.5-10 and D.5-11); and Section D.5.6 (pages D.5-14 to D.5-17).

The technical discussion and evaluation of seismicity upon the proposed design is provided in sections D.4.4 to D.4.6 (pages D.4-13 to D.4-20) and Appendix C (pages 1-13, 1-15, 3-5, and 3-9).

The basis for **Finding 10** regarding the containment structure is as follows:

a. ***Double Composite Liner.*** JTD, Volume 1, Section C.2.4, pages C.2-7 through C.2-9.

b. ***Primary Leachate Collection And Recovery System (LCRS) – Bottom.*** JTD, Volume 1, Section C.2.5, pages C.2-9 and C.2-10 and shown in figures 14, 15 and 15A.

c. ***Primary Leachate Collection And Recovery System (LCRS) – Sideslopes.*** JTD, Volume 1, Section C.2.5.4, page C.2-11.

The Regional Board recognizes that it may not be possible to build the primary LCRS, required by the applicable state and federal regulations, on the sideslopes proposed for the Unit and maintain slope stability. Instead, the LCRS on steep sideslopes will be designed as described above for sloped areas steeper than 5:1.

Provided that the operations layer (see **Finding 11** of this Order), constructed directly overlying the primary LCRS, has adequate properties, the Discharger has designed the proposed piping system of the LCRS to rapidly convey leachate from the collection point to the point of discharge (into leachate sump and ultimately to the leachate storage tanks as indicated in **Finding 10.e** of this

Order). Leachate is not expected to accumulate on the sideslopes. These requirements comply with CCR Title 27 §20340(c).

d. ***Secondary Leachate Collection and Recovery System (LCRS).*** JTD, Volume I, Section C.2.4, page C.2-7 and Volume II, Appendix G, pages 22 and 23.

The Discharger proposes to substitute monitoring of the secondary LCRS/leak detection layer for unsaturated zone monitoring required pursuant to CCR Title 27 §20415(d). The proposal is consistent with the allowance for alternative methods for implementing a detection monitoring program for the unsaturated zone pursuant to CCR Title 27 §20380(e).

The Discharger's proposed engineered alternative meets the requirements of CCR Title 27 §20080(b & c). CCR Title 27 §20415(d)(4) states that liquid recovery types of unsaturated zone monitoring are required unless the Discharger demonstrates to the satisfaction of the Regional Board that such methods of unsaturated zone monitoring cannot provide an indication of a release from the Unit.

The following factors were considered in evaluating the use of a leak detection layer as an alternative to the required detection monitoring of the vadose zone, as required by CCR Title 27 §20415(d):

1. The analysis of the Discharger's proposed engineered alternative to a prescriptive liner system (included in Finding 10.a and Landfill Operation Specification D.8) as described in Finding 10.a of this Order.

2. The complexities of the local geology (fractured rock aquifers, as described in the JTD and **Finding 6** of this Order) located beneath the unit effectively limits or precludes the effective application preferred vadose zone monitoring methods (e.g., lysimeters) as required by CCR Title 27 §20415(d)(4).

3. The uncertainties associated with applying the preferred vadose zone method (e.g., lysimeters) in the vadose zone

comprised of fractured bedrock (containing numerous preferential pathways) would be unlikely to comply with the performance requirements for unsaturated zone to provide: "... the best assurance of the earliest possible detection of a release from the Unit" as required by CCR Title 27 §20415(d)(2)(B).

4. The proposed leak detection system will be capable of detecting, leaks of hazardous constituents (in the liquid and vapor phases), at the earliest practicable time, through all areas of the top liner likely to be exposed to waste or leachate during the active life and post-closure care period. The proposed construction and monitoring of the secondary LCRS/leak detection layer is consistent with the performance goals for vadose zone monitoring requirements of CCR Title 27 §20415(d).

5. The proposed Unit is located in proximity to significant existing local beneficial uses of groundwater (see **Finding 7** of this Order), and to surface waters of the San Luis Rey River. The Regional Board finds that the proposed construction, operation and monitoring of a secondary LCRS/leak detection layer affords equivalent protection against water quality impairment as is intended through the application of vadose zone monitoring under CCR Title 27 §20415(d).

6. Pursuant to CCR Title 27 §20415(d)(4), this Order requires the Discharger to conduct a "*complementary or alternative*" type of monitoring of liquid and vapor phases in the secondary LCRS/leak detection layer to provide the best assurance of the earliest possible detection of a release from the Unit.

The Discharger's proposed monitoring data procurement and analysis methods achieve the program's respective goals. For a detection monitoring program (under §20420), this requires " a sufficient number of Monitoring Points established at appropriate locations and depths to yield soil pore liquid samples or soil pore liquid measurements that provide the best assurance of the earliest

possible detection of a release from the Unit.." [pursuant to CCR Title 27 §20415(d)(2)(B)].

A properly designed, constructed and monitored leak detection system should be capable of detecting, collecting and removing leaks of hazardous constituents (in the liquid and vapor phase) at the earliest practicable time through all areas of the top liner likely to be exposed to waste or leachate during the active life and post-closure care period. The proposed construction and monitoring of the secondary LCRS/leak detection layer offers equivalent or better detection monitoring performance and is consistent with the goals for vadose zone detection monitoring requirements of CCR Title 27 §20415(d).

e. ***Subdrain System.*** JTD, Section C.2.3, pages C.2-6 and C.2-7.

CCR Title 27 §20240(c) requires that all new landfills be sited, designed, constructed and operated to ensure that wastes will be a minimum of five feet above the highest anticipated ground water elevation of underlying ground water. The inclusion of a subdrain underneath the WMU helps to provide assurance that this requirement will be met.

The basis for **Finding 11** regarding the ***Operations Layer*** is JTD, Volume I, Section C.2.6, pages C.2-12 and C.2-13. The JTD proposes the following elements be incorporated into the design of the Operations layer:

1. The installation of a 12-ounce nonwoven geotextile fabric layer, over the Primary LCRS gravel on the bottom, prior to placement of a two-foot thick operations layer;

2. The installation of 16-ounce nonwoven geotextile fabric layer, over the 80-mil geomembrane prior to placement of a two-foot operations layer on the sideslopes; and

3. CCR Title 27 §20320 and §20324 et seq. contain the applicable construction quality assurance testing (laboratory and field testing) and reporting requirements for the Gregory Canyon Landfill.

The basis for **Finding 12** regarding **borrow/stockpile soils** is JTD, Volume I, Section C.2.2.4, pages C.2-4 and C.2-5.

CCR Title 27 §21750(f)(5)(C) requires that a slope stability analysis must indicate a factor of safety for the critical slope of at least 1.5 under dynamic conditions. The slope stability analyses for Stockpile Areas A & B included six critical cross-sections indicate factors of safety 2.10 and 4.04 which exceed the value in CCR Title 27.

The basis for **Finding 13** regarding ***alternate daily cover (ADC)*** is JTD, Section B.4.4.5.1, pages B.4-13 and B.4-14.

The basis for **Finding 14** regarding a ***contingency water treatment system*** is JTD, Section B.5.18, pages B.5-23 to B.5-25.

The basis for **Finding 15** regarding ***industrial and construction storm water discharges*** is JTD, Section B.2.2.2, page B.2-2 and Appendix D.

The basis for **Finding 16** regarding the **storm water conveyance** is the following:

a. JTD, Section C.2.8.3.2, pages C.2-17 and C.2-18

b. JTD, Section C.2.8.1, page C.2-15

c. JTD, Section C.2.8.3.4, pages C.2-18 to C.2-20.

The basis for **Finding 17** regarding **groundwater detection monitoring limitations** is JTD, Volume 1, Section D.5.1.2, pages D.5-5 through D.5-8.

Effectively monitoring the quality of groundwater, flowing within the fractured rock aquifer, for evidence of a release/leak of waste constituents from the WMU is limited by a number of site-specific factors:

a. Groundwater flows through preferential pathways, including fractures, cracks and crevices rather than through the rock itself.

b. Due to the uneven distribution of fractures groundwater flow through fractured rock aquifers is very unpredictable.

c. Permeable fractures that transmit great amounts of liquids may be widely spaced and may not intersect the detection monitoring well system.

d. The unpredictability of fracture location and groundwater flow imparts additional uncertainty in the effectiveness of detection monitoring systems for groundwater in fractured rock aquifers.

Similar geological conditions and technical challenges associated with designing an effective groundwater detection monitoring network were also evaluated for the Campo Indian Landfill (Huntley, 1993a and 1993b). Because of the many similarities and relevant technical issues, the Regional Board reviewed and considered the technical discussions of hydrogeology and detection groundwater monitoring provided by Dr. David Huntley (Geology Professor Emeritus from San Diego State University) for the Campo Indian Landfill. Fracture zones in unweathered bedrock may be narrow and difficult to detect (Huntley, 1993a). The low porosity in fractured bedrock forces large amounts of water through small but very permeable areas, which results in very high transport velocities. As a result, pollutants may be rapidly transported away from the proposed landfill without being detected (Huntley, 1993a). As indicated above, the causes of fracturing are varied, which adds to the unpredictable nature of fracture location and direction.

The dikes which have intruded the unweathered bedrock, as identified by both the CDMG (2000) (see **Finding 6** above) and by the JTD, may be additional sources of preferential pathways providing conduits for groundwater flow and hence any groundwater contaminants. The CDMG (2000) map also indicates a number of local contacts among different rock types in Gregory Canyon, which may influence groundwater flow direction. This condition may account for the abrupt change in groundwater flow direction, from a northerly to a westerly direction, observed near the mouth of Gregory Canyon.

Even with low porosity values in unweathered bedrock, the fracture flow systems within the bedrock can produce high yield water supply wells. The occurrence of low-yield groundwater wells completed in fractured bedrock aquifers may only indicate that fracture systems with significant permeabilities have not been intersected by the wells (Huntley, 1993b).

The basis for **Finding 18** regarding **surface water monitoring limitations** is JTD, Volume II, Appendix G, page 22 and figure 5.

The position of the nearest proposed surface water monitoring station (SLRSW-1 in Attachment 2 to this M&RP) is located approximately 1,200 feet from the WMU. It is unlikely that the position of station SLRSW-1 will provide information that complies with the performance requirements for the "best assurance of the earliest possible detection of a release from the Unit" as required by the applicable requirements from CCR Title 27. The Discharger must provide the Regional Board with a workplan to enhance and improve the surface water monitoring system to comply with the applicable performance requirements for surface water Detection Monitoring Program.

The basis for **Finding 19** regarding a ***Replacement Water Contingency Plan*** is:

1. There are a number of technical difficulties associated with implementing a groundwater detection monitoring program (**Finding 17** of this Order), and there are significant site-specific uncertainties associated with the existing hydrogeologic data presented in the JTD. The Regional Board can not determine if the proposed groundwater detection monitoring network will comply with the performance state requirements of CCR Title 27, §20415(b)(1)(B), §20420(b), and federal requirements of CFR Title 40 §258.51(a)(2).

2. Fractured rock aquifers are heterogeneous and likely to contain preferential pathways of groundwater flow, the flow of groundwater through a fractured rock system is likely to be heterogeneous with flow being concentrated through very permeable zones, permeable zones of the fractured rock aquifer are most likely to be the same zones used by domestic water supply wells, and the fractured rock aquifer is likely to have only a very limited ability to attenuate pollutants released from the landfill. The factors described here, and in item 1 above, can make discharges of pollutants difficult to detect, delineate, and remediate in a fractured rock aquifer in a short period of time.

3. The current and potential beneficial uses of groundwater located in proximity to the proposed Unit (**Finding 21** of this Order) located in the San Luis Rey River watershed.

4. Technical approaches are available for evaluating wellhead protection areas for water supply wells in fractured rock aquifers. One source of information on this topic is the guidance published by USEPA as: "*Delineation of Wellhead Protection Areas in Fractured Rocks*", publication number EPA 570/9-91-009, dated June 1991; and "*Guidelines for Delineation of Wellhead Protection Areas*", dated June 1987.

5. Similarities between site characteristics and water supply aspects at the Campo Indian Landfill and those associated with the proposed Gregory Canyon Landfill. Important similarities and considerations include the proximity of a groundwater dependent community and aspects/complexity of the hydrogeology (*i.e.,* a fractured bedrock aquifer). As a result, the Regional Board has also considered sources of information associated with the Campo Indian Landfill as being relevant and appropriate for evaluation of hydrogeological information and geological conditions at Gregory Canyon:

   a. The JTD indicates that the aquifer pumping tests were conducted in wells screened over long stratigraphic intervals probably covering multiple rock types, including the unweathered and weathered fractured bedrock aquifers. This does not satisfy the minimum conditions, recommended in the available literature, concerning the conduct of aquifer pumping tests in fractured rock aquifers:

      i. The technical literature indicates that properly designed aquifer tests should be performed using wells that are exclusively screened within each of the aquifers separately (Fetter, 1994). Wells screened across more than one aquifer will give ambiguous data because the contributions from each of the aquifers cannot be quantified under such conditions.

      ii. Additionally, to characterize groundwater flow in fractured bedrock systems wells used in the aquifer test(s) need to be screened along the same fractures to ensure the data is representative of aquifer conditions, and not bias the results towards low permeabilities which could incorrectly under estimate the risk to down gradient receptors (Huntley, 1993a).

   b. Written comments provided by the SWRCB in Resolution No. 93-42 for the Campo Indian Reservation Landfill. The SWRCB found that: "*The requirement to provide an alternative water supply of the same quality and quantity shall extend, for any and all uses, to any surrounding or adjacent property owners whose water supply may be adversely impacted by the construction, operation or maintenance of the landfill.*"

Considerations of the factors listed above indicate that it is appropriate for the Regional Board to require that the Discharger prepare a written contingency plan

to provide replacement water (i.e., an alternative water supply), including an assessment of wellhead protection areas for the locally identified water supply wells and the other information required in Provision *H.*12 of this Order.

The basis for **Finding 20** regarding the **Water Quality Control Plan** is Water Code §13240 to §13244, and as defined in Water Code §13050(j).

The basis for **Finding 21** regarding the Basin Plan's **Beneficial Uses And Water Quality Objectives** are: 1) Tables 2-2 and 2-5 for beneficial uses of surface waters and ground water; and 2) Tables 3-2 and 3-3 for water quality objectives for surface waters and ground water of the Pala Hydrologic Subarea.

The Basin Plan is the source of narrative and numeric water quality objectives that are used as water quality standards (pursuant to CCR Title 27 § 20390) used in these waste discharge requirements.

The Basin Plan also contains waste discharge prohibitions that are applicable to the waste management and disposal operations at the Gregory Canyon Landfill. The implementation plan of the Basin Plan contains waste discharge prohibitions that are applicable to discharges of waste at the proposed Gregory Canyon Landfill.

In developing these waste discharge requirements, the Regional Board considered a number of factors, including some provisions of Water Code §13241 as required by Water Code §13263(a), including:

1. Provisions of Water Code §13241(a): Past, present, and probable future beneficial uses of the hydrologic unit under consideration (**Finding 21**);

2. Provisions of Water Code §13241(b): Environmental characteristics of the hydrologic unit under consideration, including the quality of water available thereto (**Findings 6, 7 and 17**);

3. Provisions of Water Code §13241(c): Water quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area (**Findings 25, 26, and 28**);

4. Beneficial uses to be protected and the water quality objectives reasonably required for that purpose (**Finding 22**);

5. Other waste discharges in the watershed (**JTD, page B.1-2 and B.1-3**);

6. The need to prevent pollution and nuisance conditions (**Findings 4 and 15**);

7. Economic considerations for closure and corrective actions (**Findings 23** and **Provision H.4** of this Order; **and JTD Part F, and JTD pages B.5-22 to B.5-23**); and

8. Provisions of Water Code § 13241(f): The need to develop and use recycled water (**Finding 27**).

The Regional Board did not perform an analysis of the following factors in Water Code §13241:

1. Provisions of Water Code §13241(d): Economic considerations

2. Provisions of Water Code §13241(e): The need for developing housing within the region.

The following provides further information related to **Finding 22** regarding the CEQA.

The County of San Diego is the "lead agency" for purposes of compliance with provisions of the CEQA. According to information provided by the County of San Diego, the following summarizes the history CEQA submittals for the proposed project:

On February 06, 2003, the Director of the Department of Environmental Health (DEH) certified the Gregory Canyon Landfill Final Environmental Impact Report (EIR) as being in compliance with CEQA and the CEQA guidelines.

A lawsuit was filed challenging the adequacy of the Final EIR for the proposed project. On January 20, 2006, Superior Court Judge Michael Anello issued a final ruling (peremptory writ of mandate) in the case that directed the DEH to do the following:

- Set aside the decisions certifying the final EIR (February 6, 2003);
- Set aside the decision making the findings related approval of the Gregory Canyon Landfill under CEQA (June 2, 2004);
- Set aside the decision approving the solid waste facility permit, Statement of Overriding Considerations, Mitigation Monitoring and Reporting Program (June 2, 2004);
- Set aside the decision approving a Supplemental Statement of Overriding Considerations and revised solid waste facility permit (October 8, 2004);
- Bring the analysis of traffic, water supply, and mitigation into compliance with CEQA and Proposition C; and
- Comply with Proposition C by requiring additional mitigation for project impacts.

On February 27, 2006 the Director of County Department of Environmental Health (DEH) set aside the decisions as required by the Superior Court.

On July 13, 2006 the County DEH issued a Draft Revised Partial EIR (DRPEIR) for public review and comment. On August 24, 2006, the County DEH closed the public comment period on the DRPEIR. On May 31, 2007, the County DEH certified a Revised Final Environmental Impact Report (consisting of the 2003 Draft EIR and the Revised Partial EIR) for the Gregory Canyon Landfill in accordance with the California Environmental Quality Act (CEQA) Public Resources Code §21000 *et seq.*).[2] The Regional Board is a responsible agency

[2] On January 20, 2006, the Superior Court issued final ruling (Preemptory Writ of Mandate for Case GIN038227) identifying deficiencies in several parts of the existing Environmental Impact Report (EIR) prepared for the proposed project. As of that date, the existing CEQA EIR became defunct.

for purposes of CEQA. Consistent with CEQA Guidelines section 15096, the Regional Board has considered the EIR prepared by the County of San Diego and has considered the environmental impacts of the project. The EIR did not identify any significant effect on the environment with respect to water quality. The EIR stated that the Discharger must comply with waste discharge requirements issued by the Regional Board. This Order requires compliance with all applicable water quality requirements, including Title 27 CCR Division 2 and the Basin Plan and compliance with those requirements will be protective of water quality. The project as approved, will not have a significant impact on water quality.

This Finding is also based upon guidance ["Compliance with CEQA and National Environmental Policy Act (NEPA)"] provided by the SWRCB to the Regional Boards for preparation of WDRs [an appendix to Chapter 9 of the SWRCB Administrative Procedures Manual (APM) on Water Quality].

The basis for **Finding 23 regarding financial assurances** is JTD, Section B.5.1.7, page B.5-22 to B.5-23.

The Regional Board is required to include a provision requiring the Discharger to obtain and maintain assurances of financial responsibility for initiating and completing corrective actions for all known or reasonably foreseeable releases from the Unit [CCR Title 27 §20380(b)]. **Finding 23** supports inclusion of **Provision H.4** of this Order.

The basis for **Finding 24** regarding **annual fees** is based upon the information provided to the Regional Board in the JTD, the discharge of waste or waste constituents into groundwater or surface waters could cause the long-term loss of the designated/actual municipal and domestic (MUN), and agricultural (AGR) beneficial uses of water resources. The proposed Gregory Canyon Landfill is ranked as Threat to Water Quality (TTWQ) category "1." The complexity (CPLX) ranking is established at category "B", which is the complexity ranking required for Class III landfills (per factors established in CCR Title 23 §2200).

However, as an operating/active facility, the Gregory Canyon Landfill is required to pay annual fees pursuant to the Public Resources Code (PRC) §48000 *et seq.* Dischargers who are required to pay the fee imposed pursuant to PRC §48000 shall not be required to pay the annual fee imposed pursuant to subdivision (d) of §13260 of the Water Code (or CCR Title 23 §2200) with regard to the same

discharge. The requirement for payment of annual fees under CCR Title 23, §2200 is held in abeyance until such time as the Discharger ceases payment of the fee imposed pursuant to PRC §48000.

The basis for **Finding 25** regarding ***water quality certification*** is §401 of the Clean Water Act.

The basis for **Finding 26** regarding ***recycled water*** is CCR Title 22. Recycled water for this project would be produced at a wastewater treatment facility regulated by this Regional Board with waste discharge requirements. These waste discharge requirements for the producer would include all applicable provisions for treatment prescribed by CCR Title 22. CCR Title 22 also includes provisions for the use of reclaimed water. These provisions are being addressed in Discharge Specification C.5 of this Order. In addition, Gregory Canyon Limited has accepted responsibility for providing supplemental treatment of the recycled water, if necessary, using a reverse osmosis treatment system to assure compliance of the discharge with water quality objectives as prescribed by Discharge Specification C.5.b

The basis for **Finding 27** regarding ***local agency approval*** *is CCR Title 27 §21720(d)]*[3].

The basis for **Finding 28** regarding **water resource factors** is JTD, Volume 1, Sections B.1.5.3 and B.1.5.4, pages B.1-7 through B.1-10, Section D.4, pages D.4-1 through D.4-20 , page D.5-8, pages D.5-14 to D.5-17, Figure 30A, Table 12D and Volume II, Appendix C-1.

The basis for **Finding 29** regarding the Regional Board's **public participation process** includes the following:

1. Public Workshop on May 19, 2005. The Regional Board convened a public workshop in Escondido to collect input from the public regarding the proposed project.

2. The Regional Board has established web pages for the proposed Gregory Canyon Landfill project. The web pages include the following information:

[3] WDRs for new Units shall not be effective until the RWQCB is notified that all local agencies with jurisdiction to regulate land use, solid waste disposal, air pollution, and to protect public health have approved use of the site for discharges of waste to land [CCR Title 27 § 21720(d)].

a. An electronic copy of the JTD at http://www.waterboards.ca.gov/sandiego/units/ldu/gregory_jtd.html

b. Information about the public Workshop held on May 19, 2005 at http://www.waterboards.ca.gov/sandiego/units/ldu/Canyon%20Project/PUBLIC%20WORKSHOP%20%20INFO/workshop_info.html

c. Electronic copy of comments letters prepared by the Regional Board on past versions of the JTD at http://www.waterboards.ca.gov/sandiego/units/ldu/gregory_canyon.html

3. The Regional Board conducted public notification of its intent to hold a public hearing on the proposed Gregory Canyon project. The 60-day public notification period exceeds the minimum 45-day notification required by CCR Title 27, §21730.

4. The Regional Board made the draft agenda package available to the public, at least 30-days prior to the Public Hearing on _____ via paper copy at the office of the Regional Board and via the agency's Gregory Canyon web page at: http://www.waterboards.ca.gov/sandiego/units/ldu/Canyon%20Project/gregory_canyon_landfill.html

5. On October 14, 2009, the Regional Board convened a public hearing to collect public input on the tentative Order for the proposed Gregory Canyon Landfill.

The Regional Board has conducted appropriate public notification and public participation including interested agencies, and all interested parties known to the Regional Board, of its intent to consider adoption of WDRs for the Gregory Canyon Landfill.

The Regional Board has reviewed and considered all water quality related issues required by the applicable regulatory requirements in CCR Title 27 and CFR Title 40, Part 258, and presented in the JTD prepared for the proposed project.

A. PROHIBITIONS

The prohibitions in this Order are based upon the authority granted to the Regional Board under Water Code §13243.

A.1 *The discharge of waste shall not*:

a. Cause the occurrence of coliform or pathogenic organisms in waters of the State;

b. Cause the occurrence of objectionable tastes and odors in waters of the State;

c. Cause waters of the State to foam;

d. Cause the presence of toxic materials in waters of the State;

e. Cause the pH of waters of the State to fall below 6.0 or rise above 9.0;

f. Cause this Regional Board's objectives for waters of the State as established in the Basin Plan, to be exceeded; or

g. Cause pollution, contamination or nuisance or adversely affect beneficial uses of waters of the State as established in the Basin Plan.

BASIS: This prohibition is consistent with the water quality objectives (numeric and narrative) promulgated in the Basin Plan (see Chapter 3 description and Tables 3-1, 3-2 and 3-3 for numeric limits).

A.2 *Odors, vectors, landfill gas/vapors, and other nuisances of waste origin that occur beyond the limits of the landfill property boundary are prohibited.*

BASIS: Regional Board Basin Plan (page 4-15: Waste Discharge Prohibition No. 6).

A.3 *The discharge of wastes shall not create conditions that violate any waste discharge prohibition in the Basin Plan.*

BASIS: This prohibition makes it clear that all waste discharge prohibitions contain in the Basin Plan apply to the discharges regulated by this Order.

A.4 *The discharge of waste to areas of the Gregory Canyon Landfill without a prescriptive liner or engineered alternative liner, except as authorized by waste discharge requirements or the terms described in Water Code §13264, is prohibited.*

BASIS: The discharge of wastes must meet the siting criteria established by CCR Title 27 §20260(a), as modified by SWRCB Resolution No. 93-62; or an engineered alternative to the prescriptive requirements approved by the Regional Board [under CCR Title 27 §20080(b), §20080(c), and §20080(d)], and must be into a unit equipped with a prescriptive composite liner and leachate collection and removal system (LCRS) pursuant to CFR Title 40 §258.40, or an alternative as allowed by the CFR Title 40 §256.21 and SWRCB Resolution 93-62. Consequently, discharges of municipal solid waste to areas of the site without the liner prescribed under this Order would violate the noted state and federal regulations.

A.5 *The discharge of wastes, which have the potential to reduce or impair the integrity of the containment structure or which, if commingled with other wastes, could produce violent reactions, heat or pressure, fire or explosion, toxic byproducts, or reaction products are prohibited.*

BASIS: Pursuant to CCR Title 27 §20200(b), the wastes described in this prohibition shall be discharged only at dedicated Units or landfill cells, which are constructed to contain such wastes.

A.6 *The discharge of the following wastes into the Gregory Canyon WMU is prohibited:*

a. The discharge of any hazardous wastes, as defined in CCR Title 22, Division 4.5.

BASIS: Management and disposal of hazardous wastes are regulated under Division 4.5 of CCR Title 22, which requires such waste to be

discharged at a Class I waste management unit.

b. *The discharge of liquid or semi-solid waste (i.e., waste containing less than 50 percent solids) other than dewatered sewage or water treatment sludge as described in CCR Title 27 §20220(c).*

BASIS: Disposal of liquid or semi-liquid waste could contain soluble pollutants in concentrations which exceed applicable water quality objectives, or could cause degradation of waters of the state.

c. *The disposal of designated wastes, as defined by Water Code §13173 and CCR Title 27 §20210, unless otherwise authorized by this Order.*

BASIS: As stated in the cited section of Title 27, the discharge of designated waste shall be only at Class I or Class II waste management units.

d. *The disposal of wastes containing greater than one percent (>1%) friable asbestos.*

BASIS: Pursuant to CCR Title 22, Division 4.5, §66261.24 (Characteristic of Toxicity), the total threshold limit concentration (TTLC) for friable asbestos is established at one percent. Therefore, wastes containing more than one percent friable asbestos are classified as a California Hazardous waste. Pursuant to CCR Title 27 §20200(c),

e. *The disposal of shredded automobile bodies, household appliances and sheet metals (shredder waste).*

BASIS: In accordance with Regional Board Basin Plan policy regarding the disposal of autoshredder wastes (Resolution No. 88-06), which implements requirements of the SWRCB policy on disposal of autoshredder wastes (SWRCB Resolution No. 87-22), automobile shredder wastes may be classified as hazardous wastes, and may not be discharged to Class III (or MSW) landfills, unless those wastes are below the soluble concentration limits/criteria specified in §66268.106(a)(1).

f. The disposal of containerized liquids.

BASIS: CFR Title 40, §258.28 (liquids restriction) specifies that bulk or on containerized liquid wastes and containers containing liquid waste may not be placed in the landfill unless that waste is a household waste other than septic waste, the waste is leachate or gas condensate derived from the MSW waste management unit, or the waste is in a container that is small in size like that normally found in household waste, the container is designed to hold liquids for use other than storage or the waste is a household waste.

g. The disposal of decommissioned material/wastes from decommissioned sites into Class III and unclassified WMUs.

BASIS: Cleanup and Abatement Order No. R9-2002-0330 established a moratorium on the disposal of decommissioned material/wastes (based on the Governor's Executive Order No. D-62-02) into Class III and unclassified waste management units.

h. The disposal of any other waste that fails to satisfy the conditions prescribed in Sections B and C of this Order.

BASIS: This Prohibition reinforces the requirements in Sections B and C of this Order and clarifies that anything being discharged to the WMU that fails to comply with the conditions is prohibited under this Order.

A.7 *The discharge of waste shall not exceed the acreages, volumes, and locations specified in Finding Nos. 25.b, 25.f, and 25.g.*

BASIS: This prohibition enforces the acreages contained in the Discharger's 401 application as described in the above findings of this Order.

A.8 *The project shall not cause significant adverse impacts upon the quality of surface waters in a local, state, or federal wildlife preserve or sanctuary, or other surface waters of significant local, regional, statewide, or national importance.*

BASIS: Title 23, Division. 3, Chapter 28 Certifications, Article 1, §3859 (a) & (a)(1) Action on an Application.

DISCHARGE SPECIFICATIONS

The discharge specifications for the Gregory Canyon Landfill have been subdivided into categories for easy reference as follows:

B. General Discharge Specifications;
C. Discharge Specifications for Specific Types of Waste;
D. Landfill Operation Specifications;
E. Lan dfill Construction Specifications;
F. Fill Specifications; and
G. Closure and Post-Closure Specifications

Many of the discharge specifications are taken directly from the applicable state and federal regulations. To simplify the staff report, each discharge specification is described in the following table. The table also includes the applicable regulatory reference, location of discussion of compliance with the regulation in the Joint Technical Document as well as a reference to the location in either the tentative waste discharge requirements or monitoring and reporting program.

In some instances, a discharge specification may require further explanation. These items are in bold italics in the following table. The discussion for these items will be located after the discharge specification table in the staff report.

Section	Basis	JTD	WDR/MRP
B. Discharge Specifications			
B.1 No exceedance of background	CCR Title 27 § 20420 and 40 CFR § 258.54.	Vol 1, Section B.5.1.3	MRP, B.2
B.2 Non-hazardous and inert waste	CCR Title 27 § 20200(c).	Vol 1, Section B.1.5.2	WDR, Finding 3
B.3 Discharge confined to lined area	CCR Title 27 §20260(b)(1) and 40 CFR 258.40(a) through 258.40(c).	Vol 1, Section B.1.4	WDR, Finding 10.a.
B.4 Accurate characterization of waste	CCR Title 27, 20200(c) and CCR Title 22, Division 4.5, § 66300 et seq.	Vol 1, Section B.1.5	WDR, Finding 3
B.5 No exceedance of moisture capacity	CCR Title 27 §20200(d)(3).	Vol 1, Section B.1.5.2.1	WDR, Finding 3

Section	Basis	JTD	WDR/MRP
C. Discharge Specifications for Specific Types of Waste			
C.1 Treated Wood	CCR Title 27 §20260(b)(1) and 40 CFR 258.40(a) through 258.40(c).	Vol 1, Section B.1.5.2.1	WDR, Finding 3
C.2 Sewage Sludge	CCR Title 27 §20220(c).	Vol 1, Section B.1.5.2.1	WDR, Finding 3
C.3 Landfill Leachate and Condensate	CCR Title 27 §20340(g) and 40 CFR §258.28.	Vol 1, Section C.2.5.5	WDR, RR 6.b
C.4 Contaminated Soils		Vol 1, Section B.1.5.2.1	WDR, Finding 3
C.4.a. Waste Soil samples	2004 edition *SW-846*	Vol 1, Section B.1.5.2.1	WDR, Finding 3
C.4.b. Waste soils a daily landfill cover	CCR Title 27 §20705(e)(1).	Vol 1, Section B.4.4.5	WDR, Finding 14
C.4.c Soil wastes cert. As non-hazardous	CCR Title 22, Division 4.5.	Vol 1, Section B.1.5.2.1	WDR, Finding 3
C.4.d Soil wastes may contain conc. of metals/pesticides, org. & inorg. constituents	CCR Title 22, Division 4.5, §66261.24, as amended.	Vol 1, Section B.1.5.2.1	WDR, Finding 3
C.4.e Test Methods for soils containing petroleum hydrocarbons	2004 edition *SW-846*	Vol 1, Section B.1.5.2.1	WDR, Finding 3
C.4.f Test Methods for soils containing metals and pesticides	2004 edition *SW-846*	Vol 1, Section B.1.5.2.1	WDR, Finding 3
C.5 Recycled Water			
C.5.a Treated in conformance with regs	Title 22, Division 4, Chapter 3, §60307(b)	Volume II, Appendix G-1, p. 12	MRP I.1.a
C.5.b Effluent limitations	Water Quality Control Plan, Chapter 4, Water Reclamation Requirements	Volume II, Appendix G-1, p. 15	MRP I.2
C.5.c Cross-connection shut-down test	Water Quality Control Plan, Chapter 4, Water Reclamation Requirements	Vol 1, Section B.3.1.4.1	WDR, Finding 26
C.5.d Recycled Water Supervisor	Water Quality Control Plan, Chapter 4, Water Reclamation Requirements	Volume II, Appendix G-1, p. 13	WDR, Finding 26

Section	Basis	JTD	WDR/MRP
C.5.e Storage facilities protected 100-yr storm	Water Quality Control Plan, Chapter 4, Water Reclamation Requirements	Not in JTD.	WDR, Finding 26
C.5.f Storage facilities o/o by recycled users protected against 100-year storm	Water Quality Control Plan, Chapter 4, Water Reclamation Requirements	Not in JTD.	WDR, Finding 26
C.5.g Irrigation with disinfected tertiary	Water Quality Control Plan, Chapter 4, Water Reclamation Requirements	Not in JTD.	WDR, Finding 26
C.5.h Impoundment of disinfected tertiary	Water Quality Control Plan, Chapter 4, Water Reclamation Requirements	Not in JTD.	WDR, Finding 26
C.5.i Irrigation w/undisinfected secondary	Water Quality Control Plan, Chapter 4, Water Reclamation Requirements	Not in JTD.	WDR, Finding 26
C.5.j Irrigation w/or impoundment of undis. Secondary setback from domestic supply well	Water Quality Control Plan, Chapter 4, Water Reclamation Requirements	Not in JTD.	WDR, Finding 26
C.5.k Reclaimed water facilities operated in accordance with BMPs	Water Quality Control Plan, Chapter 4, Water Reclamation Requirements	Volume II, Appendix G-1, p. 13	
C.5.l Windblown spray/surface runoff	Water Quality Control Plan, Chapter 4, Water Reclamation Requirements	Volume II, Appendix G-1, p. 18	WDR, Finding 26
C.5.m Irrigation during periods of minimal human use	Water Quality Control Plan, Chapter 4, Water Reclamation Requirements	Volume II, Appendix G-1, p. 16	WDR, Finding 26
C.5.n Location of drinking fountains	Water Quality Control Plan, Chapter 4, Water Reclamation Requirements	Not in JTD.	WDR, Finding 26
C.5.o Facilities that may be used by the public	Water Quality Control Plan, Chapter 4, Water Reclamation Requirements	Not in JTD.	WDR, Finding 26
C.5.p Spray irrigation with recycled water	Water Quality Control Plan, Chapter 4, Water Reclamation Requirements	Not in JTD.	WDR, Finding 26
C.5.q Recycled water use signs	Water Quality Control Plan, Chapter 4, Water Reclamation Requirements	Volume II, Appendix G-1, p. 13	WDR, Finding 26
C.5.r No physical connection	Water Quality Control Plan, Chapter 4, Water Reclamation Requirements	Volume II, Appendix G-1, p. 13	WDR, Finding 26
C.5.s Recycled water piping system	Water Quality Control Plan, Chapter 4, Water Reclamation Requirements	Volume II, Appendix G-1, p. 13	WDR, Finding 26
C.5.t Public water supply	Water Quality Control Plan, Chapter 4, Water Reclamation Requirements	Not in JTD.	

Section	Basis	JTD	WDR/MRP
C.5.u Recycled water piping and appurt.	Water Quality Control Plan, Chapter 4, Water Reclamation Requirements	Volume II, Appendix G-1, p. 13	WDR, Finding 26
C.5.v Backflow prevention device	Water Quality Control Plan, Chapter 4, Water Reclamation Requirements	Not in JTD.	WDR, Finding 26
D. Landfill Operations Specifications	**Basis**	**JTD**	
D.1 Methane and Other Landfill Gases	CCR Title 27 §20917 and §20425(d)(3).	Vol 1, Section B.5.2.3	WDR, RR I.12
D.2 Load Checking Program	CCR Title 27 §20870 and 40 CFR 258.20.	Vol 2, Appendix F	WDR, Prov H.17
D.3 Water Use	CCR Title 27 §20705(f) and §21090(a)(5).	Vol 1, Section B.5.3.1	WDR, Finding 26
D.4 Vertical Separation	CCR Title 27 §20240(c).	Vol 1, Section B.1.2.1	WDR, Finding 10.e
D.5 Surplus Soils	CCR Title 27 §20310(c)	Vol 1, Section D.4.6	WDR, Finding 12
D.6 Surface Drainage			
D.6.a Rainy season operation	CCR Title 27 §20365(b).	Vol 1, Section B.4.4.4	WDR, Provision H.5
D.6.b Non-contact surface water runoff	CCR Title 27 §20365(c)(4).	Vol 1, Section C.2.8.1	WDR, Finding 16.c
D.6.c Erosion control prior to rainy season	CCR Title 27 §20365(e).	Vol1, Section C.2.8.3.5	MRP, H.9
D.6.d Surface drainage from outside WMU	CCR Title 27 §20365(c)(1, 2 and 4).	Vol 1, Section C.2.8.1	WDR, Finding 16.a
D.6.e Surface drainage - divert sheet flow	CCR Title 27 §20365(c)(2).	Vol 1, Section C.2.8.3.1	WDR, Finding 16.b
D.6.f No ponding/accumulation of gw	CCR Title 27 §20310(c).	Vol 1, Section B.5.4	WDR, Finding 16.a
D.6.g Sediments from desiltation basins	CCR Title 27 §20365(c)(6)	Vol 1, Section C.2.8.3.5	WDR, Finding 16.c
D.7 Erosion Control			
D.7.a Implement BMPs	Order No. 1999-08- DWQ	Vol II, Appendix D, Section 2.3	WDR, Finding 15

Section	Basis	JTD	WDR/MRP
D.7.b Classes of post-construction BMPs	CWA §401 and San Diego County Storm Water Permit, Order No. R9-2007-001	Storm Water Management Plan for GCLF, dated September 22, 2008	WDR, Finding 15
D.7.c Post-construction BMPs must be installed and functional	CCR Title 23, Division 3, Chapter 28, §3859	Storm Water Management Plan for GCLF, dated September 22, 2008	WDR, Finding 15
D.7.d Transfer of maintenance responsibility for post-construction BMPs	CCR Title 23, Division 3, Chapter 28, §3859	Storm Water Management Plan for GCLF, dated September 22, 2008	WDR, Finding 15
D.7e Transfer copy of long-term BMP maintenance plan	CCR Title 23, Division 3, Chapter 28, §3859	Storm Water Management Plan for GCLF, dated September 22, 2008	WDR, Finding 15
D.7.f Discharger responsible for inspection and maintenance of post-construction BMPs	CCR Title 23, Division 3, Chapter 28, §3859	Storm Water Management Plan for GCLF, dated September 22, 2008	WDR, Finding 15
D.7.g Discharger must inspect and maintain structural BMPs	CCR Title 23, Division 3, Chapter 28, §3859	Storm Water Management Plan for GCLF, dated September 22, 2008	WDR, Finding 15
D.7.h Erosion control material shall be used for protection of drainage conveyance features	CCR Title 27 §20365(3)(A and B).	Storm Water Management Plan for GCLF, dated September 22, 2008	WDR, Finding 15
D.7.i High flow velocity at terminal ends of downchutes	CCR Title 27 §20365(3)(A and B).	Vol II, Appendix D, Section 2.3	WDR, Finding 15
D.7.j All areas maintained to minimize erosion	CCR Title 27 §20365(3)(A and B).	Vol II, Appendix D, Section 2.3	WDR, Finding 15
D.7.k Landfill cover maintained to minimize percolation	CCR Title 27 §20705(b).	Vol 1, Section C.2.8.3.5	WDR, Provision H.5

Section	Basis	JTD	WDR/MRP
D.8 Leachate Collection and Removal System			
D.8.a P & S LCRS function w/o clogging	CCR Title 27 §20340(d)	Vol 1, Section B.5.1.1.2	WDR, Finding 10.b
D.8.b. Leachate production not to exceed 85%	40 CFR §258.40(a)(2)	Vol 1, Section B.5.1.1.2	WDR, Finding 10.b
D.8.c Depth of fluid in any LCRS sump below 6"	CCR Title 27 §20340(c)	Vol 1, Section C.2.5.3.1	WDR, Finding 10.b and d
D.8.d Appropriate discharge of leachate	CCR Title 27 §20340(g)	Vol 1, Section B.5.1.1.2	WDR, Finding 10.d
D.8.e Collect/remove liquids from Sec. LCRS	40 CFR §264.301(c)(4)	Vol II, Appendix G, Section 3.2.1	MRP, DMP B.9
E. Landfill Construction Specifications			
E.1 Precipitation and Drainage Control	CCR Title 27 §20365(c)(5)	Vol I, Section C.2.8.1	WDR, RR I.4
E.2 Subdrain	No regulatory reference	Vol I, Section C.2.3	WDR, Finding 10.e
E.3 Liner Materials	CCR Title 27 §20320(a)	Vol I, Section C.2.4	MRP, H.8
E.4 Slope Stability			
E.4.a MCE	CCR Title 27 §20370	Vol I, Section C.2.9.1.4	WDR, RR I.3
E.4.b Interim cut and/or fill slopes	CCR Title 27 §21750(f)(A)	Vol I, Section C.2.9.2.4	WDR, RR I.10
E.4.c Temporary cut and/or fill slopes	CCR Title 27 §21750(f)(A)	Vol I, Section C.2.9.2.2	WDR, RR I.10
E.4.d Containment structure	CCR Title 27 §20330(a)	Vol I, Section C.2.1	WDR, RR I.3 and I.4.a
E.4.e Dynamic factor of safety = 1.5	CCR Title 27 §21750(f)(5)	Vol II, Appendix C, Section 3.3.1	WDR, RR I.4.a
E.4.f Slopes not to exceed 1.5:1	CCR Title 27 §21090(a)	Vol I, Section C.2.2.2	WDR, RR I.4.a
E.5 Foundation/Subgrade			

Section	Basis	JTD	WDR/MRP
E.5.a Capable of withstanding MCE	CCR Title 27 §20240(d)	Vol I, Section C.2.9.1.4	MRP, H.8
E.5.b Subgrade particle size < 0.5" diameter	Cleanup and Abatement Order R9-2006-0016	Vol II, Appendix N, Section 5.5.5	MRP, H.8
E.6 Liner System			
E.6.a Eng. Alt. For sideslope	No regulatory reference	Vol I, Section C.2.4	WDR, Finding 10.a
E.6.b. Eng. Alt for base	No regulatory reference	Vol I, Section C.2.4	WDR, Finding 10.a
E.6.c Liner cover all geologic materials	CCR Title 27 §20330(d)	Vol I, Section C.2.4	WDR, RR I.4.a
E.6.d Ensure junctions between liners	Order No. R1-2004-0040	Vol I, Section C.4.4.2	WDR, RR I.4
E.6.e Geomembrane performance standards	CCR Title 27 §20240 and §20310	Vol 1, Section C.2.4	WDR, RR I.4
E.7 Construction Quality Assurance/Quality Control			
E.7.a CQA Plan	CCR Title 27 §20324(b)(1) and §20310. Eng'd Alt, CCR Title 27 §20323	Vol I, Section C.4.1	MRP, H.6
E.7.b Hydraulic Conductivity of Soils	CCR Title 27 §20320(b)	Vol I, Section C.4.4.2	MRP, H.7 & RR I.4
E.7.c ELLS after geomembrane installation	No regulatory reference	Vol II, Appendix N, page 30	MRP, H.7 & RR I.4
E.7.d CQA Report	CCR Title 27 §20324(c)	Vol I, Section C.4.4.3	MRP, H.7 & RR I.4
E.7.e Third party CQA	No regulatory reference	Vol II, Appendix Q	WDR, RR I.4.b
E.8 Leachate Collection & Removal System			
E.8.a LCRS convey collected leachate	CCR Title 27 §20340(a) and (b)	Vol I, Section C.2.5.1	WDR, Finding 10.b
E.8.b LCRS Construction Materials	CCR Title 27 §20320(a)	Vol I, Section C.2.5.2	WDR, RR I.4.a
E.8.c. Primary LCRS collect 2X antic. Vol. Leachate	CCR Title 27 §20340(c)	Vol I, Section C.2.5.2	WDR, RR I.4.a

Section	Basis	JTD	WDR/MRP
E.8.d Secondary LCRS	40 CFR §264.301(c)(3)	Vol 1, Section B.5.1.3.3	WDR, Finding 10.d
E.8.e Landfill gas removal from prim. & sec. LCRS	40 CFR §258.23(b)	Vol I, Section C.2.7	MRP, B.9.b.iii & iv
E.9 Operations Layer			
E.9.a Minimum requirements	No regulatory reference	Vol I, Section C.2.6	WDR, Finding 11
E.9.b 12-ounce nonwoven geotextile installation	No regulatory reference	Vol I, Section C.2.6	WDR, Finding 11
E.10 Landfill Cover			
E.10.a Intermediate Cover	Cease and Desist Order No. 98-39 & CCR Title 27 §20705	Vol I, Section B.4.4.6	WDR, Finding 13
E.10.b Alternate Daily Cover	CCR Title 27 §20690(b) and §20705	Vol I, Section B.4.4.5	WDR, Finding 13
E.10.c Other Alternate Daily Covers	CCR Title 27 §20690(b) and §20705	Vol I, Section B.4.4.5.1	Not in WDR or MRP
F. Fill Specifications			
F.1 Implement Restoration and Enhancement Plan	No regulatory reference	Restoration and Enhancement Plan	WDR, Finding 25.i
F.2 Restoration and Enhancement Plan consistent with MRP R9-2009-0004	No regulatory reference	Restoration and Enhancement Plan	WDR, Finding 25.i
F.3 Preparation of remedial measures	No regulatory reference	Not in JTD.	Not in WDR or MRP
F.4 Certification no later than 10 days prior to start of construction	Standard language for 401 Certifications.	Not in JTD.	Not in WDR or MRP
F.5 Within 90 days, submit draft preservation mechanism	Standard language for 401 Certifications.	Not in JTD.	Not in WDR or MRP

Section	Basis	JTD	WDR/MRP
F.6 As-built report w/i 60 days after each restoration phase.	Standard language for 401 Certifications.	Not in JTD.	Not in WDR or MRP
F.7 Copies of all approvals/permits for the project	No regulatory reference	Not in JTD.	Not in WDR or MRP
G. Closure and Post-Closure Specifications			**WDR/MRP**
G.1 Closure under supervision of RCE	CCR Title 27 §21710(d)	Vol I, Section E.1.6	WDR, RR I.12
G.2 Final Cover	CCR Title 27 §20950 et seq and §21090 et seq	Vol I, Section E.1.3.1.2	WDR, RR I.12
G.3 3% grade final cover	CCR Title 27 §21090(b)(1)(A)	Vol I, Section E.1.2	WDR, RR I.12
G.4 Final Cover Materials	CCR Title 27 §20365(f)	Vol I, Section E.1.3.1.4	WDR, RR I.12
G.5 Post-Closure Maintenance Period	CCR Title 27 §20950(a)(1)	Vol I, Section E.2.5	WDR, RR I.12
G.6 Vegetation for final Cover	CCR Title 27 §21090(a)(3)(A)(1)	Vol I, Section E.1.3.1.4	WDR, RR I.12
G.7 Compliance with Title 27	CCR Title 27 §21090 et seq	Vol I, Section E.1.1 & E.2.1	WDR, RR I.12

C. Discharge Specifications for Specific Types of Waste

C.5.a *RECYCLED WATER. All recycled water shall be treated in conformance with all applicable provisions of CCR, Title 22, Division 4, Chapter 3 (Water Recycling Criteria) by a Recycled Water Agency regulated with waste discharge requirements and, at a minimum, meet disinfected secondary-23 recycled water standards as prescribed by §60307(b).*

BASIS: **Specification C.5.a** stipulates that recycle water used at the site must meet **Title 22 standards**. This specification, in effect, requires the landfill operator to obtain recycled water from a treatment facility regulated by this Regional Board that produces an effluent quality in conformance with Title 22 standards.

Assessment of compliance with this requirement will be reported pursuant to Monitoring and Reporting Program Requirement I.1.a.

C.5.b *RECYCLED WATER. The discharge of treated effluent containing waste constituents in excess of the following effluent limitations is prohibited:*

Discharge Specifications Based on Groundwater Water Quality Objectives

Constituent	Units	12-Month Average [a]
Total Dissolved Solids [c]	mg/L	900
Chloride [c]	mg/L	300
Sulfate [c]	mg/L	500
Nitrate Nitrogen (as NO_3)	mg/L	15
Iron	mg/L	0.3
Manganese	mg/L	0.03

[a] *The 12-month average effluent limitation shall apply to the arithmetic mean of the results of all samples collected during the current calendar month and the preceding 11 calendar months.*

BASIS: The threat of impacts to ground water quality from the loading of salts in recycled water will be minimized with the construction of a liner and leachate collection system beneath the WMU. To further protect water quality, **Specification C.5.b** prescribes **effluent limitations** for the discharge that are consistent with the *Water Quality Control Plan for the San Diego Basin,* which states the following:

In groundwater basins not upgradient of municipal water supply reservoirs the Regional Board shall adopt numerical effluent limitations for constituents at levels no lower than the quality of the basin's water supply concentration plus an incremental increase equal to the typical incremental increase added to the water supply as a result of domestic use. The effluent limitations shall be no higher than the Basin Plan ground water quality objective.

The concentration of constituents in recycled water in northern San Diego County would be representative of the Basin's water supply concentration plus an incremental increase equal to the typical

incremental increase added to the water supply as a result domestic water use. Information regarding the quality of recycled water for one of the treatment plants near the Gregory Canyon landfill site and the corresponding groundwater quality objectives for Pala Hydrologic Subarea are presented in the following Table.

Constituent	Units	Recycled Water Quality[4]		Water Quality Objective
		Range	Average	
Total Dissolved Solids	mg/L	680-930	771	900
Chloride	mg/L	124-169	144	300
Sulfate	mg/L	184-243	214	500
Nitrate (as NO_3)	mg/L	8.6-243	80	15
Iron	mg/L	0.02-0.36	0.1	0.3
Manganese	mg/L	Non detect -0.04	0.02	0.05

The effluent limitations for total dissolved solids, nitrate, iron and manganese were established at the water quality objective and effluent limitations for chloride and sulfate at a value representative of typical recycled water quality, which was below the water quality objective.

D. Landfill Operations Specifications

D.5. *SURPLUS SOILS. The discharge or placement of "surplus soils", e.g., stockpiled soils associated with landfill construction projects, used in landfill operations, or closure of a WMU shall not cause or contribute to the failure of engineered slopes on cut or fill material, or natural ground, or create adverse impacts upon the integrity or performance of the WMU's foundation, liner system, waste containment structures, or the structures which control leachate, surface drainage, erosion or gas.*

[4] Water Quality Effluent Monitoring Data Fallbrook Public Utility District, as presented in Regional Board Technical Document in support of tentative Order No. R9-2006-0164

BASIS: Landfill construction and/or filling operations may require the creation of temporary soil stockpiles (*i.e.*, surplus soils). In order to ensure that the waste containment system meets the long-term performance requirements of CCR Title 27 §20310(c) the Discharger must ensure that the placement of any temporary stockpiles/surplus soils do not cause or contribute to the failure of engineered slopes on cut or fill material, or natural ground, or create/contribute to adverse impacts upon the integrity or performance of the Unit's foundation, liner system, waste containment structures, or the structures which control leachate, surface drainage, erosion or gas.

D.8.e *LEACHATE COLLECTION AND REMOVAL SYSTEM. The Discharger shall collect and remove pumpable liquids in the secondary LCRS sumps to minimize the head on the bottom liner.*

BASIS: This Specification is based upon the authority granted to the Regional Board under Water Code §13243. As indicated in **Finding 10.d** of this Order, the JTD submitted by the Discharger proposes to construct a secondary LCRS/leak detection system. The Regional Board finds that it is appropriate to require construction of the proposed double composite liner design, including the secondary LCRS/leak detection layer, based upon the nature of the local geology (fractured rock aquifers: **Finding 6**) located beneath the unit, the sensitivity of the existing local beneficial uses of groundwater (**Findings 20 and 21**), difficulty in effectively monitoring fractured rock aquifers (**Finding 17**), and proximity to surface waters of the San Luis Rey River.

Although not strictly applicable to facilities managing and disposing of MSW regulated pursuant to CFR Title 40, Part 258 and CCR Title 27, the most appropriate requirements for construction and performance of secondary LCRS/leak detection system are found in CFR Title 40, Part 264, Subpart N, §264.301(c)(3) – Standards for Owners and Operators of Hazardous Waste Treatment, Storage and Disposal Facilities.

The Discharger proposes to construct secondary LCRS/leak detection layer (per **Finding 10.d** of this Order) comprised of "9-inch minimum thickness gravel or equivalent secondary leak detection/drainage layer (including a dendritic leachate collection piping system)." The Regional Board concurs that the choice of a

leak detection layer constructed pursuant to **Finding 10.d** is preferable to the "geonet" option described in §264.301(c)(3)(ii). Based upon the experiences of other Regional Board (Region 3), geonet drainage layers may be subject to failure/clogging under the stresses and pressures applied in base liner applications for MSW landfills.

The Regional Board finds that in the absence of other existing requirements for construction, performance, and operation of leak detection layers at MSW landfills, most of the requirements in CFR Title 40, Part 264, Subpart N, §264.301(c)(3) are relevant and appropriate for use at the proposed Gregory Canyon Landfill.

E. Landfill Construction Specifications

E.2 *SUBDRAIN. The bottom liner system of the WMU shall be underlain by a dendritic array of subdrain collection trenches lined with 12-ounce geotextile and filled with gravel. The gravel shall be designed to prevent clogging over the service life of the subdrain system and protect the integrity of the liner system during the operational life, closure, and post-closure maintenance period of the WMU. The Discharger shall collect and test subdrain effluents for waste constituents and manage the effluent in compliance with all applicable federal, state and local requirements.*

BASIS: This Discharge Specification is based on the authority granted to the Regional Board under Water Code §13243, and the description of the subdrain contained in **Finding 10.e** of this Order. Early detection of constituents will be monitored in accordance with the Monitoring and Reporting Program attached to this Order.

E.5.b FOUNDATION/SUBGRADE. *The subgrade shall be rolled to a smooth and level surface. The surface of the subgrade shall be free of stones greater than 0.5-inch in diameter, organics and other deleterious material.*

BASIS: It is necessary that the subgrade consist of a smooth and level surface in order to prevent construction defects to the liner. This will be achieved by limiting the types of material that can be used

in the subgrade and the size of rocks that can be part of the subgrade.

This Regional Board has had experience with an inadequate subgrade that contained large rocks (up to 3-inches), rebar, *etc.* that eventually damaged the liner and caused the slope to fail at the Las Pulgas Landfill. This resulted in the issuance of a Cleanup and Abatement Order (see Order R9-2006-0016 and associated Technical Report at http://www.waterboards.ca.gov/sandiego/orders/orders-06.html). Compliance with this Discharge Specification will help reduce the probability of liner damage after installation due to underlying materials.

E.6.a *LINER SYSTEM.* ***The engineered alternative liner used for sideslope areas*** *(e.g., "steep" sections with gradients greater than 5:1) shall consist of the components contained in Finding 10.a of this Order. The GCL component shall be installed in a manner that ensures complete long-term coverage, including a minimum overlap of at least 24-inches (2 feet) with adjacent GCL panels, regardless of the effects of shrinkage or stretching of the GCL panels. The geomembranes (both 60-mil and 80-mil) shall provide complete coverage on the surface of the underlying liner system component.*

BASIS: This Specification is based upon the authority granted to the Regional Board under Water Code §13243. The overlap of the GCL panels is based on recent experience by Regional Board staff in Region 8 where shrinkage of GCLs, resulting in up to 48-inch gaps between GCL panels, after installation of a landfill liner system at the Badlands Landfill. The 24-inch overlap requirement is included as a minimum requirement to help ensure that GCL panels will cover the entire planned area with consideration to some shrinkage due to exposure during liner installation.

E.6.b *LINER SYSTEM.* ***The engineered alternative liner used for the bottom of the waste management unit*** *(and slopes with gradients less than 5:1) shall consist of the components contained in Finding 10.a of this Order. The GCL component shall be installed in a manner that ensures complete long-term coverage, including an adequate overlap with adjacent GCL panels, regardless of the effects of shrinkage or stretching of the GCL panels. The*

geomembranes (both 60-mil and 80-mil) shall provide complete coverage on the surface of the underlying liner system component.

BASIS: This Specification is based upon the authority granted to the Regional Board under Water Code §13243, and **Finding 10.a** of this Order. Also, see the basis for **Landfill Construction Specification E.6.a.**

E.6.d *LINER SYSTEM. The Discharger shall ensure that the junction(s) between the bottom liner system components and sideslope liner system components (at the base of the slopes), the junction between the sideslope liner system and the anchor trenches/tie-downs (at top of slopes), and junctions between adjacent panels of geosynthetic materials are constructed in a manner that do not:*

i. Provide a pathway for the migration and release of wastes, waste constituents, or degradation products (leachate, landfill gas, etc.), or

ii. Cause or contribute to adverse impacts upon: WMU's ability to contain waste constituents, the integrity and performance of the WMU's foundation, liner system, or the structures which control leachate, surface water drainage, erosion or gas.

BASIS: Design failure in liner anchor trench construction at the Central Landfill (located in jurisdiction of the North Coastal Regional Board - Region 1) lead to the release of landfill gas, which collected around the liner and subsequently resulted in ground water pollution at the facility. The Discharger submitted an amended design for the anchor trench that is currently being reviewed by Region 1 staff. The issue is described in *Finding 52 of Order No. R1-2004-0040* (available on line at http://www.waterboards.ca.gov/northcoast/orders/072304-CentraSWDS-wdrs.pdf). **Discharge Specification E.6.d** ensures that similar conditions do not occur during construction of the Gregory Canyon Landfill.

E.7.c. *CONSTRUCTION QUALITY ASSURANCE/QUALITY CONTROL. After completing installation of a geomembrane component and the*

LCRS gravel, or LCRS gravel and operations layer, the Discharger shall:

i. Complete an electrical leak location survey (ELLS), using it to check the integrity of all bottom and sideslope areas covered by the geomembrane component,

ii. Take necessary steps to identify and repair all defects located in the geomembrane component, and

iii. Include the results from the ELLS and any repairs to the geomembrane in the relevant CQA report including: text discussions of field activities, daily logs of defect repairs, results from all testing performed to assess the integrity of patches/repairs made to the geomembrane, separate site plot plan indicating location(s) of all defects/repairs performed for each geomembrane layer – these site plot plans shall be made to the same scale to facilitate comparison between geomembrane layers, and supporting photographs- of all defective areas and repairs made to the geomembrane component.

BASIS: Appendix N, JTD, Geotechnical Construction Quality Assurance (CQA) Plan for Construction of the Liner System (see page 30).

E.7.e *CONSTRUCTION QUALITY ASSURANCE/QUALITY CONTROL. A technically qualified third party, independent of both the Discharger and the construction contractor, shall perform all the construction quality assurance monitoring and testing during the construction of the liner system. That third party shall certify that the liner system was constructed in compliance with all applicable plans and engineering specifications.*

BASIS: Appendix Q, Joint Technical Document, First Supplement to San Luis Rey Municipal Water District Agreement dated June 2004.

E.8.d *LEACHATE COLLECTION AND REMOVAL SYSTEM. The secondary LCRS systems, must be capable of detecting, collecting*

and removing leaks of waste constituents at the earliest practicable time through all areas of the top liner likely to be exposed to waste or leachate during the active life and post-closure care period. At a minimum, the Discharger shall ensure leak detection system is:

i. Constructed with a bottom slope of one percent or more,

ii. Constructed of granular drainage materials with a hydraulic conductivity of $1x10^{-2}$ cm/sec or more and a thickness of 9 inches (23 centimeters) or more;

iii. Constructed of materials that are chemically resistant to the waste managed in the landfill and the leachate expected to be generated and of sufficient strength and thickness to prevent collapse under the pressure exerted by the overlying waste cover materials and equipment used at the landfill; and

iv. Constructed with sumps and liquid removal methods (e.g. pumps) of sufficient size to collect and remove liquids from the sump and prevent liquids from backing up into the drainage layer. Each unit must have its own sump(s). The design of each sump and removal system must provide a method of measuring and recording the volume of liquids present in the sump and liquids removed.

BASIS: This Specification is based upon the authority granted to the Regional Board under Water Code § 13243. As indicated in **Finding 10.d** of this Order, the JTD submitted by the Discharger proposes to construct a secondary LCRS/leak detection system. The Regional Board finds that it is appropriate to require construction of the proposed double composite liner design, including the secondary LCRS/leak detection layer, based upon the nature of the local geology (fractured rock aquifers: **Finding 6**) located beneath the unit, the sensitivity of the existing local beneficial uses of groundwater (**Findings 20 and 21**), difficulty in effectively monitoring fractured rock aquifers (**Finding 17**), and proximity to surface waters of the San Luis Rey River.

Although not strictly applicable to facilities managing and disposing of MSW regulated pursuant to CFR Title 40, Part 258 and CCR Title 27; the most appropriate requirements for construction and performance of secondary LCRS/leak detection system are found in CFR Title 40, Part 264, Subpart N, §264.301(c)(3) – Standards for Owners and Operators of Hazardous Waste Treatment, Storage and Disposal Facilities.

The Discharger proposes to construct secondary LCRS/leak detection layer (per **Finding 10.d** of this Order) comprised of "9-inch minimum thickness gravel or equivalent secondary leak detection/drainage layer (including a dendritic leachate collection piping system)." The Regional Board concurs that the choice of a leak detection layer constructed pursuant to **Finding 10.d** is preferable to the "geonet" option described in §264.301(c)(3)(ii). Based upon the experiences of other Regional Board (Region 3), geonet drainage layers may be subject to failure/clogging under the stresses and pressures applied in base liner applications for MSW landfills.

The Regional Board finds that in the absence of other existing requirements for construction, performance, and operation of leak detection layers at MSW landfills; most of the requirements in CFR Title 40, Part 264, Subpart N, §264.301(c)(3) are relevant and appropriate for use at the proposed Gregory Canyon Landfill.

E.9.a *OPERATIONS LAYER. The Operations layer shall meet the following minimum requirements:*

(1) Be free of debris, roots, scrap material, asphalt, concrete, vegetation, untreated refuse, and other deleterious, or objectionable material.

(2) Be comprised of gravel, sands, clays and/or silts and have a minimum lab permeability of 0.01 centimeters per second (cm/s).

(3) May not contain asphalt, concrete, limestone or other material that could adversely react with the landfill leachate.

BASIS: This specification is based upon the authority granted to the Regional Board under Water Code §13243, and contains criteria for the composition of the operations layer, which is a 24-inch thick layer installed directly above the LCRS on the bottom of the Unit and adjacent to the geomembrane on the sideslope areas (per **Findings 10.a and 11** of this Order). Because the operations layer is placed directly adjacent to the geomembrane on the sideslope areas, it is important that the materials used in the operations layer have the following minimum characteristics:

1. Be free of debris and materials that may puncture the geomembrane, if left in contact with or in proximity to the geomembrane, under the stress/loads imposed upon the operations layer materials and geomembrane by overlying wastes.

2. Be permeable enough to allow effective drainage of leachate, from the overlying wastes, into the LCRS located beneath the wastes in the bottom areas of the Unit. A minimum permeability of 0.01 cm/sec is equivalent to a "medium sand" (Todd, 1980), "clean sand" (Freeze and Cherry, 1979), and is consistent with the anticipated permeability of the "gravel layer" proposed for the primary leachate collection and removal system (primary LCRS see **Findings 10.b and 10.c** of this Order).

3. In the absence of a drainage layer (primary LCRS gravel) being placed on the sideslopes of the Unit, the operations layer must be permeable enough to allow effective drainage/conveyance of leachate, from the overlying wastes on the sideslopes, into the LCRS.

The operations layer is a containment structure under the definition of that term in CCR Title 27 §20164. Further, CCR Title 27 §20310(e) requires that the design and construction of all waste containment structures be supervised and certified by a California registered civil engineer or certified engineering geologist.

E.9.b *OPERATIONS LAYER. A 12-ounce nonwoven geotextile fabric layer shall be installed over the primary LCRS gravel on the bottom, prior to placement of the operations layer.*

BASIS: This specification requires installation of 12-ounce nonwoven geotextile fabric layer shall be installed over the primary LCRS gravel on the bottom liner, as specified in the JTD and recorded in **Findings 10.a and 11** of this Order. The purpose of the geotextile is to act as a filter fabric for the leachate percolating through the wastes and help to reduce clogging of the LCRS.

E.10.a *LANDFILL COVER. Units with intermediate cover (as defined in CCR Title 27 §20700), which have been/will be exposed for longer than two years from the time the intermediate cover was installed, shall have a minimum of two-feet of soil cover maintained over the landfill unit. All intermediate cover(s) shall be designed and constructed to minimize percolation of liquids through wastes pursuant to CCR Title 27 §20705.*

BASIS: This specification is based upon the authority granted to the Regional Board under Water Code §13243, and requires that all intermediate covers (covers in place more than 2 years) over inactive Units be at least 2 feet thick. The experience of the Regional Board with intermediate covers at other inactive/closed landfills indicates that intermediate covers that do not attain a thickness of at least 2 feet may not be adequate to contain wastes at an inactive Unit.

The Regional Board adopted the 2 foot minimum thickness in Cease and Desist Order No. 98-39 (see Adopted Orders on the Regional Board web page at http://www.waterboards.ca.gov/sandiego/orders/90s%20orders.html), after the failure of a thinner intermediate cover design to fully and consistently contain solid wastes at the San Marcos Landfill located in San Diego County. Further, all intermediate cover(s) must be designed and constructed to minimize percolation of liquids through wastes pursuant to CCR Title 27 §20705.

H. PROVISIONS

The basis for **Provisions H.1, H.2, H.3, H.5, H.6, H.7, H.8, H.9, H.10, H.11, H.14, H.15 and H.19** is the standard provisions provided to the Regional Boards as guidance on for preparation of WDRs [an appendix to Chapter 2 of the SWRCB Administrative Procedures Manual (APM) on Water Quality].

H.4. *FINANCIAL ASSURANCES FOR CLOSURE, POST-CLOSURE AND CORRECTIVE ACTION. Within* ***one year*** *of the effective date of this Order, the Discharger shall establish and maintain adequate and acceptable assurances of financial responsibility for closure, post-closure monitoring and maintenance, or implementation of corrective action in response to a release of waste constituents from the WMU.*

Initially, the Discharger shall establish financial assurances in the minimum amount of ***$33,735,123****. The financial assurances shall cover the costs estimated for closure, post-closure maintenance, and corrective actions for reasonably foreseeable releases from the waste management units at the Gregory Canyon Landfill:*

TASK	***Estimated Cost***	***Source of Estimate***
Closure	*$20,681,897*	*JTD (2004) Volume 1, Page F.1-3*
Post-Closure Maintenance and Monitoring	*$8,219,910*	*JTD (2004), Volume 1, Page F.1-9*
Corrective Actions for reasonably foreseeable releases	*$4,833,316*	*JTD (2004), Volume 1, Page B.5-22*
Total =	***$33,735,123***	

The Discharger plans to update the financial assurances, as necessary to ensure that adequate funds are available, to cover the cost of closure, post closure monitoring and maintenance, and corrective actions in response to a reasonably foreseeable release from a waste management unit at the Gregory Canyon Landfill.

The Discharger shall ensure that their selected financial assurance instrument meets the following minimum criteria:

a. *The financial assurance instrument makes funds directly available to the Regional Board upon a finding by the Regional Board that the Discharger has failed or refuses to implement closure, post-closure monitoring and maintenance, or conduct corrective actions*

in response to a release of waste constituents from the waste management unit.

b. The amount of the financial assurances are regularly updated, at least every five (5) years, to ensure that adequate funds can be made directly available to the Regional Board for implementation of closure, post-closure monitoring and maintenance, or corrective action.

*When the Discharger notifies the Regional Board of a transfer of ownership (per **Provision H.7** and **Reporting Requirement I.4**), the notification shall include a proposed schedule for the succeeding owner to provide evidence of acceptable financial assurance responsibility to the Regional Board.*

BASIS: CCR Title 27 §22200 *et seq.* and CFR Title 40, Part 258, Subpart G, §258.70 *et seq.* CCR Title 27 §20380(b)] directing the Regional Board to include a Provision, in the applicable WDRs, requiring the Discharger to obtain and maintain assurances of financial responsibility for initiating and completing corrective actions for all known or reasonably foreseeable releases from the Unit.

Initially, the Discharger shall establish financial assurances in the amount indicated in Provision H.4 (total of **$33,735,123**). The financial assurances shall cover the costs estimated for closure, post-closure maintenance, and corrective actions for reasonably foreseeable releases from the waste management units at the Gregory Canyon Landfill:

The Discharger shall update the financial assurances, as necessary to ensure that adequate funds are available, to cover the cost of closure, post closure monitoring and maintenance, and corrective actions in response to a reasonably foreseeable release from a waste management unit at the Gregory Canyon Landfill. Also see discussion of **Finding 24** of this Order.

H.12 *REPLACEMENT WATER FOR WATER SUPPLY WELLS. In the event of a release of waste constituents and/or waste degradation products from the WMU that affects beneficial uses of groundwater, the Discharger shall*

provide replacement water to all affected private and public well owners, and to all affected parties. The replacement water provided shall meet all applicable federal, state, and local drinking water standards, and shall have comparable quality to that pumped by the public water system or private well owner prior to the discharge of waste. The Discharger shall provide the Regional Board with a Water Replacement Contingency Plan ***within 1 year*** *of completing construction of the waste containment features for Phase 1 of the WMU.*

Within ***90-days*** *of determining that there has been a release of waste constituents or waste degradation products from the WMU, the Discharger shall amend the Water Replacement Contingency Plan to include:*

a. *An updated list of local private and public well owners.*

b. *A Public Participation Plan, including the following elements:*

   i.. *Methods to identify interested parties (including private parties, public agencies, and environmental groups), and to maintain an interested parties list to facilitate public participation.*

   ii. *Proposed methods and procedures to ensure adequate public notification of the release.*

   iii. *Proposed plans to inform and involve the public during the investigation of the nature and extent of the release and implementation of corrective actions.*

   iv. *Schedule for reporting implementation of public notification and public participation tasks to the Regional Board and updating the operating record for the facility.*

c. *Proposed methods and schedules for:*

   i. *Testing potentially affected private and public water supply wells for waste constituents detected in the release.*

ii. Identification of preferred methods to provide replacement water, including evaluation of importation of potable water, installation and maintenance of wellhead treatment systems, and other methods to provide affected parties with replacement potable water supplies.

iii. Reporting implementation of water replacement contingency actions to the Regional Board and updating the operating record for the facility.

BASIS: The basis for Provision H.12 is as follows:

1. The site-specific limitations and difficulty associated with implementing an effective groundwater detection monitoring program (**Finding 17** of this Order) to comply with the performance requirements of CCR Title 27 §20415(b)(1)(B) and §20420(b).

2. The current beneficial uses of groundwater located in proximity to the proposed Unit and potential beneficial uses of groundwater resources (**Findings 20 and 21** of this Order) located in the San Luis Rey River watershed.

3. The need to develop a contingency plan to provide potable water supplies to well owners (**Finding 19** of this Order).

4. E*xisting g*uidance on performing analysis of Wellhead Protection Areas published by USEPA as: "*Delineation of Wellhead Protection Areas in Fractured Rocks*", publication number EPA 570/9-91-009, dated June 1991; and "*Guidelines for Delineation of Wellhead Protection Areas*", dated June 1987.

5. Written comments provided by SWRCB Resolution No. 93-42 for the Campo Indian Reservation Landfill. The SWRCB found that: "*The requirement to provide an alternative water supply of the same quality and quantity shall extend, for any and all uses, to any surrounding or adjacent property owners whose water supply may be adversely impacted by the construction, operation or maintenance of the landfill.*"

6. The proximity of a groundwater dependent community and aspects/complexity of the hydrogeology, at Gregory Canyon, are similar to those conditions at the Campo Landfill.

Given the sufficiently similar circumstances to the Campo Landfill, including a groundwater dependent community and similar complex hydrogeology, it is appropriate for the Regional Board to require that the Discharger prepare a written plan including an assessment of wellhead protection areas for the locally identified water supply wells using the cited guidance (EPA, 1991), and the information listed in **Provision H.12** of this Order.

The information specified in **Provision H.12** of this Order, and **Reports to be Filed with the Regional Board I.10** of the M&RP, are required under the authority given to the Regional Board by Water Code §13267.

H.13 *DISCHARGE OF DECOMMISSIONED MATERIALS. A moratorium on the disposal of material from decommissioned sites into Class III and unclassified waste management units is established under Executive Order D-62-02. This moratorium shall remain in effect until both of the following conditions are satisfied:*

a. Department of Public Health completes its assessment of the public health and environmental safety risks associated with the disposal of decommissioned materials and its regulations setting dose standards for decommissioning take effect; and,

b. The Regional Board rescinds Cleanup and Abatement Order No. R9-2002-0330.

BASIS: Water Code §13243, and the requirements of cleanup and Abatement Order R9-2002-0330 (see http://www.waterboards.ca.gov/sandiego/orders/orders-02.html), issued to implement the Governor's Executive Order D-62-02, establishing a moratorium on the discharge of decommissioned wastes into active Class III landfills. Also see related **Finding 3** and **Prohibition A.6.g** of this Order.

H.16 *HAZARDOUS WASTE EXCLUSION PROGRAM. The Discharger shall implement a hazardous waste exclusion program pursuant to CCR*

Title 27 §20870 and CFR Title 40 §258.20, and comply with any additional load inspection requirements imposed by the Local Enforcement Agency (LEA) with jurisdiction over the facility.

BASIS: This provision is based upon the authority granted to the Regional Board under Water Code §13243, and the applicable requirements to implement a hazardous waste exclusion program (pursuant to CCR Title 27 §20870 and CFR Title 40 §258.20). This program is the primary means that the Discharger will use to ensure compliance with **Prohibitions A.6.a** and **A.6.c**, and **Discharge Specification B.2** of this Order.

H.17 SECTION 401 WATER QUALITY CERTIFICATION.

a. *Every certification action is subject to modification or revocation upon administrative or judicial review, including review and amendment pursuant to Water Code §13330 and CCR Title 23 §3867.*

BASIS: Title 23, Division. 3, Chapter 28 Certifications, Article 1, §3860(a) & (a)(1) Standard Conditions.

b. *Certification is not intended and shall not be construed to apply to any activity involving a hydroelectric facility and requiring a federal Energy Regulatory Commission (FERC) license or an amendment to a FERC license unless the pertinent certification application was filed pursuant to CCR Title 23 §3855(b) and that application specifically identified that a FERC license or amendment to a FERC license for a hydroelectric facility was being sought.*

BASIS: *Title 23, Division. 3, Chapter 28 Certifications, Article 1, §3860(b) Standard Conditions.*

c. *Certification is conditioned upon total payment of any fee required pursuant to CCR Title 23 §3833 and owed by the Discharger.*

BASIS: Title 23, Division. 3, Chapter 28 Certifications, Article 1, §3860(c) Standard Conditions.

d. The Discharger must, at all times, fully comply with the engineering plans, specifications and technical reports submitted to the Regional Board, to support this 401 Water Quality Certification and all subsequent submittals required as part of this certification. The conditions within this certification must supersede conflicting provisions within such plans submitted prior to the certification action. Any modifications thereto, would require notification to the Regional Board and reevaluation for individual WDRs and/or certification amendment.

e. The Discharger must, at all times, maintain appropriate types and sufficient quantities of materials onsite to contain any spill or inadvertent release of materials that may cause a condition of pollution or nuisance if the materials reach waters of the U.S. and/or state.

f. In response to a suspected violation of any condition of this certification, the Regional Board may require the holder of any permit or license subject to this certification to furnish, under penalty of perjury, any technical or monitoring reports the Regional Board deems appropriate, provided that the burden, including costs, of the reports must bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports.

g. In response to any violation of the conditions of this certification, the Regional Board may add to or modify the conditions of this certification as appropriate to ensure compliance.

h. Any proposed change in construction that may alter flow patterns and/or change the approved impact footprint is prohibited without Regional Board approval. Not later than 30 days prior to the beginning of any proposed change, the Discharger shall submit, acceptable to the Regional Board, detailed plans and specifications showing the proposed change in relationship to the approved project.

i. Discharges of concentrated flow during construction or after completion must not cause downstream erosion or damage to properties or stream habitat.

j. Water containing mud, silt, or other pollutants from equipment washing or other activities, must not be discharged to waters of the U.S. and/or the state or placed in locations that may be subjected

to storm flows. Pollutants discharged to areas within a stream diversion area must be removed at the end of each work day or sooner if rain is predicted.

k. *All surface waters, including ponded waters, must be diverted away from areas undergoing grading, construction, excavation, vegetation removal, and/or any other activity which may result in a discharge to the receiving water. Diversion activities must not result in the degradation of beneficial uses or exceedance of water quality objectives of the receiving waters. Any temporary dam or other artificial obstruction constructed must only be built from materials such as clean gravel which will cause little or no siltation. Normal flows must be restored to the affected stream immediately upon completion of work at that location.*

l. *All areas that will be left in a rough graded state must be revegetated with native species no later than one week after completion of grading. The revegetation palette must not contain any plants listed on the California Invasive Plant Council Invasive Plant Inventory, which can be found online at http://www.cal-ipc.org/ip/inventory/weedlist.php.*

m. *All surface waters of the U.S. and state that are to be preserved shall be fenced no less than 10 days prior to the start of any project activities. A qualified biologist shall show all preservation areas to all appropriate construction personnel and shall explain the conditions of this Order and other permits regarding impacts.*

n. *The Discharger shall staff a qualified biologist on site during project construction to ensure compliance with the certification requirements. The biologist shall be given the authority to stop all work onsite if a violation occurs or has the potential to occur. No later than 30 days prior to the start of the project, the Discharger shall submit, acceptable to the Regional Board, the name(s) and qualification(s) of the qualified biologist(s) (defined as possessing a college degree in the biological sciences and at least 5 years restoration experience in southern California) responsible for compliance with the requirements of this Order.*

o. *The Discharger shall notify the Regional Board in writing at least 15 days prior to actual start dates for each project component (e.g., bridge construction, grading and filling Gregory Canyon Creek, installation of mitigation, etc.).*

p. *This Certification is valid only until the expiration of the associated U.S. Army Corps of Engineers Clean Water Act §404 individual and/or Nationwide permit.*

BASIS: For Provisions H.17.d through H.17.p, Title 23, Division. 3, Chapter 28 Certifications, Article 1, §3859 (a) & a)(1) Action on an Application.

H.18 ***MITIGATION.***

a. *The Discharger must fully implement the Restoration and Enhancement Plan prepared for Gregory Canyon Ltd. by URS, dated May 23, 2008.*

b. *The Restoration and Enhancement Plan must be consistent with Monitoring and Reporting Program No. R9-2009-004.*

c. *The proposed mitigation must commence before impacts to waters of the State occur, and be completed no later than 9 months following the initial discharge of waste into waters of the State. Delays in implementing mitigation must be compensated by increased mitigation of 0.01-acre for each day of delay of commencement or completion.*

d. *The Discharger must notify the Regional Board in writing at least **5 days prior** to the actual commencement of mitigation installation, and completion of mitigation installation.*

e. *If mitigation areas do not meet their interim or ultimate success criteria (once established), as defined within the Restoration and Enhancement Plan, the discharger shall prepare remedial measures, acceptable to the Regional Board, to be fully implemented within one year following the Regional Board's determination that success criteria were not reached.*

f. *The Discharger shall provide certification no later than **5 days prior** to the start of construction that personnel have been trained on the*

provisions and prohibitions of this Order as well as the management responsibilities detailed in each of the mitigation and monitoring plans.

g. *No later than **60 days following** the completion of the installation of the mitigation areas, the discharger shall submit final conservation easements or deed restrictions for all mitigation and preservation areas.*

h. *The Discharger shall submit an as-built report within **60 days after** complete installation of each restoration phase. The as-built report shall contain final grade and topography elevations, planted areas and palette.*

i. *During the mitigation monitoring and maintenance phase, mitigation areas must be maintained free of perennial exotic plant species including, but not limited to, pampas grass, giant reed, tamarisk, sweet fennel, tree tobacco, castor bean, and pepper tree. Annual exotic plant species must not occupy more than 5 percent of the mitigation areas.*

j. *If at any time during the implementation and establishment of the mitigation area(s), and prior to verification of meeting success criteria, a catastrophic natural event (e.g., fire, flood) occurs and impacts the mitigation area, the Discharger is responsible for repair and replanting of the damaged area(s).*

k. *For the purpose of determining mitigation credit for the removal of exotic/invasive plant species, only the actual area occupied by exotic/invasive plant species must be counted to comply with mitigation requirements.*

l. *For purposes of this Order and Certification, creation is defined as the creation of vegetated or unvegetated waters of the U.S./State where they have never been documented or known to occur (e.g., conversion of nonnative grassland to freshwater marsh). Restoration is defined as the creation of waters of the U.S./State where they previously occurred (e.g., removal of fill material to restore a drainage). Enhancement is defined as modifying existing waters of the U.S./State to enhance functions and values (e.g., removal of exotic plant species from jurisdictional areas and replacing with native species).*

BASIS: Title 23, Division. 3, Chapter 28 Certifications, Article 1, §3859 (a) & (a)(1) Action on an Application

H.20 *EFFECTIVE DATE. This Order becomes effective on the date of adoption by the Regional Board provided that the Regional Board has been notified [pursuant to CCR Title 27 §21720(d)] of all requisite approvals from all local agencies with jurisdiction to regulate land use, solid waste disposal, air pollution, and to protect public health have approved use of the site for discharges of waste to land.*

BASIS: This provision is based upon the requirements that the Regional Board must receive notifications of approvals from Local Agencies with jurisdictions cited in CCR Title 27 §21720(d).

I. REPORTING REQUIREMENTS

Pursuant to Water Code §13267, this Regional Board has the authority to require the Discharger to submit, under penalty of perjury, technical or monitoring program reports, provided that the burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. As discussed below, the basis for the reporting requirements prescribed in Section I. Reporting Requirements of this Order are, for the most part, prescribed by CCR Title 27. These requirements are consistent with the reporting requirements for Class III WMUs in this Region.

I.1 *REPORT OF WASTE DISCHARGE/JOINT TECHNICAL DOCUMENT AMENDMENT. The Discharger shall file a new Report of Waste Discharge/amendment to the Joint Technical Document at least 120 days prior to the following:*

a. *An increase in area or depth to be used for solid waste disposal beyond that specified in waste discharge requirements;*

b. *A significant change in the disposal method, location or volume (e.g., change from land disposal to land treatment);*

c. *A change in the type of waste being accepted for disposal;*

d. *The addition of a major industrial waste discharge to a discharge of essentially domestic waste, or the addition of a new process or*

product by an industrial facility resulting in a change in the character or type of waste being discharged;

e. *Any planned change in the regulated facility or activity, which may result in noncompliance with this Order.*

f. *As required for implementation of an Evaluation Monitoring Program (pursuant to CCR Title 27 §20425) and/or for a Corrective Action Program (pursuant to CCR Title 27 §20430).*

BASIS: The basis for this reporting requirement is as follows:

1. Guidance given to the Regional Boards for preparation of WDRs [an appendix to Chapter 2 of the SWRCB APM on Water Quality].

2. Regulatory requirements of CCR Title 27 §21710(a) for expansion of Regional Board permitted area of a new or existing Unit and to develop new units at existing facilities. Dischargers shall submit any applicable information required by CCR Title 27, Chapter 4, Subchapter 3, Article 4, §21710 *et seq*. Pursuant to CCR Title 27,§21585, after July 18, 1997, all information included in the Report of Waste Discharge shall be submitted to the Regional Board in the form of a "*Joint Technical Document*" and/or addenda thereto.

3. Regulatory requirements of CCR Title 27 §21710(a)(4) for material changes in types, quantities or concentrations of wastes discharged; site operations and features, or proposed closure procedures, including changes in cost estimates.

4. This reporting requirement is included under the statutory authority given to the Regional Boards by Water Code §13260 *et seq*.

I.2 *GENERAL REPORTING REQUIREMENT. The Discharger shall furnish to the Regional Board, within a reasonable time, any information which the Regional Board may request to determine whether cause exists for*

modifying, revoking and reissuing, or terminating this Order. The Discharger shall also furnish, upon request by the Regional Board, copies of records required by this Order.

BASIS: Water Code §13267.

I.3 *PRELIMINARY DESIGN REPORT At least 120 days prior to the beginning of construction for each new construction phase, a preliminary Design Report shall be submitted to Regional Board and shall include, but not be limited to, the engineered design plans, engineering specifications, and descriptions for all liners and other containment structures, leachate collection and removal components, leak detection system components, precipitation and drainage control facilities, interim covers, and description of ancillary facilities, and all information pursuant to CCR Title 27 §21760(a)(1).*

BASIS: CCR Title §21760(a)(1).

I.4 *FINAL CONSTRUCTION REPORT*

A final construction report shall be submitted to the Regional Board after each phase of construction and prior to the discharge of waste into the constructed cell. At a minimum, the final construction report shall include the following components:

a. *Final Design Report, including but not be limited to, as-built plans, specifications, and descriptions for all liners and other containment structures, leachate collection and removal components, leak detection system components, precipitation and drainage control facilities, interim covers, and description of ancillary facilities pursuant to CCR Title 27 §21760(a)(1).*

b. *Final Construction Quality Assurance (CQA) Report with a written summary of the CQA program and all test results, analyses, and copies of the inspector's original field notes, and a certification as described in CCR Title 27 §20324 et seq.*

BASIS: CCR Title 27 §21760(a)(1) and CCR Title 27 §20324.

I.5 *SIGNIFICANT MAINTENANCE ACTIVITY WORKPLAN. The Discharger shall submit a workplan prior to any significant maintenance activities that could alter existing surface drainage patterns or change existing slope configurations. These activities may include, but not be limited to, significant grading activities, the importation of fill material, the design and installation of soil borings, ground water monitoring wells, and other devices for site investigation purposes. Unless otherwise directed by the Regional Board, the Discharger may initiate the activities proposed in the workplan after expiration of thirty (30) days of compliance with this Reporting Requirement, unless otherwise directed in writing by this Regional Board.*

BASIS: CCR Title 27 §21760(b)(3).

I.6 *ON-SITE RECORD KEEPING. The Discharger must retain and have available for review by this Regional Board during normal business hours at a location at or near the WMU the following documents and records:*

a. *Inspection records, training procedures, and notification procedures required by this Order and CFR Title 40 §258.20;*

b. *Any WMU design documentation for placement of leachate or gas condensate as authorized by this Order and CFR Title 40 §258.28(a)(2);*

c. *Any demonstration, certification, finding, monitoring, testing, or analytical data as required by this Order, CCR Title 27, and CFR Title 40 Subpart E, §258.50 et. seq.;*

d. *Closure and post-closure care plans and any monitoring, testing, or analytical data as required by this Order, CCR Title 27 and CFR Title 40 §258.60 and §258.61;*

e. *Any cost estimates and financial assurance documentation required by this Order, CCR Title 27, and CFR Title 40 Subpart G, §258.70 et. seq.;*

f. *Certifications from the generator that the analyses submitted are representative of the material to be disposed;*

g. Analytical data or Material and Safety Data Sheets representing the waste stream;

h. The Chain-of-Custody form showing the sample's integrity was not compromised;

i. The approximate volume (in cubic yards) of the waste(s) and the transporter information;

j. Documentation that , the Discharger obtain authorization, when required, for the discharge of solid wastes, containing elevated concentrations of selected metals (lead, copper, or nickel) through a variance issued by the DTSC and a Solid Waste Facility Permit from the LEA [pursuant to California Health and Safety Code §25157.8(a)] or other applicable statutory requirements;

k. Any information required by CFR Title 40, Part 258, §258.29(a)(4) [placement of leachate or gas condensate as allowed by CFR Title 40, Part 258, §258.28(a)(2) and this Order], §258.29(a)(6) [closure and post-closure plans and monitoring, testing, or analytical data as required by CFR Title 40, Part 258, §258.60 and §258.61], and §258.29(a)(7) [any cost estimates and financial assurance documentation required by CFR Title 40, Subpart G];

l. Notifications from the Discharger required pursuant to CCR Title 27 §21710(a)(4) and §21710(c), and this Order;

m. Records required to be kept in compliance with CCR Title 27 §21710(f);

n. The Joint Technical Document (JTD) and any amendments thereto prepared pursuant to CCR Title 27 §21585(a)(4); and any additional records and certifications required to be kept in compliance with this Order; and

Any other information that is necessary to comply with CFR Title 40, Part 258, CCR Title 27, and this Order, to the facility operating record, and notify the Regional Board ***within 14 days*** *of updating the information in the Operating Record for the facility.*

BASIS: CFR Title 40, Part 258 (§258.28(a)(2), §258.29, §258.60 and §258.61) for recordkeeping and CCR Title 27

[including §20415(e)(16), §21585(a)(4), §21710(a)(4), §21710(c), §21710(f) for reporting/recording requirements; §21720(f), §21760, and §21769], and California Health and Safety Code §25157.8(a). The recording requirements are also consistent with standard provisions [*Maintenance of Records*] given to the Regional Boards as guidance for preparation of WDRs [an appendix to Chapter 2 of the SWRCB APM on Water Quality].

I.7 *CHANGE IN OWNERSHIP. The Discharger shall notify the Regional Board, in writing, at least **30 days** in advance of any transfer of this Order's responsibility and coverage between the current owner and new owner for construction, operation, closure, or post-closure maintenance of a landfill. This agreement shall include an acknowledgement that the existing owner is liable for violations up to the date of transfer of ownership and that the new owner is liable after the date that ownership of the property transfers. The agreement shall include an acknowledgement that the new owners shall accept responsibility for compliance with this Order, including obtaining such financial assurances as the State may require, for implementation of closure and post-closure maintenance/monitoring for the WMU.*

BASIS: CCR Title 27 §21710(c)(1) and the guidance for preparation of WDRs [an appendix to Chapter 2 of the SWRCB APM on Water Quality].

I.8 *INCOMPLETE REPORTS. Where the Discharger becomes aware that if failed to submit any relevant facts in a Report of Waste Discharge or submitted incorrect information in a Report of Waste Discharge or in any report to the Regional Board, it shall promptly submit such facts or information. The Discharger shall notify the Regional Board of any changes in information submitted to the Regional Board under the applicable SWRCB-promulgated requirements of CCR Title 27 [pursuant to CCR Title 27 §21710(a)(4].*

BASIS: 40 CFR §122.41(l)(8), pertains to NPDES permits, but the rationale for this requirement is applicable to all facilities regulated by this Regional Board.

I.9 *ENDANGERMENT OF HEALTH AND ENVIRONMENT. The Discharger shall report any noncompliance, which may endanger human health or the environment. Any such information shall be provided orally to the*

*Regional Board **within 24 hours** from the time the owner becomes aware of the circumstances. A written submission shall also be provided **within five days** of the time the owner becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected; the anticipated time it is expected to continue, and steps taken or planned to reduce, eliminate, or prevent recurrence of the noncompliance. The Regional Board, or an authorized representative, may waive the written report on a case-by-case basis if the oral report has been received within 24-hours.*

BASIS: Guidance for preparation of WDRs [an appendix to Chapter 2 of the SWRCB APM on Water Quality].

I.10 *NOTIFICATION OF SLOPE FAILURE. The Discharger shall notify the Regional Board immediately, upon a determination that a slope failure is occurring or has occurred at the facility. The Discharger shall promptly repair any slope failure that affects or threatens the integrity or performance of the foundation, liner system, waste containment structures, or the structures which control leachate, surface drainage, erosion or gas at the WMU. Any temporary slope, constructed as part of an engineering measure to mitigate slope stability, must comply with requirements in **Landfill Construction Specifications E.4.b, E.4.c and E.4.f** of this Order.*

I.11 *NOTIFICATION OF SEEPAGE. The Discharger shall immediately report by telephone or e-mail a discovery of any previously unreported seepage of liquid from any active, inactive, or closed WMU at the Gregory Canyon Landfill and shall comply with reporting requirements in **Section G of Monitoring and Reporting Program No. R9-2009-0004.***

BASIS: **Reporting Requirement I.10** regarding notification of slope failure and **Reporting Requirement I.11** regarding the reporting of seepage are necessary to ensure that the Regional Board is informed of conditions at the WMU that may create violations of the performance requirements required in CCR Title 27 §20310(c) [waste containment structures], and §20330(a) [liner systems] or situations that may result in a potential threat to public health and the environment.

I.12 *NOTIFICATION OF LEACHATE PRODUCTION CHANGE. The Discharger shall notify the Regional Board within **seven days** if fluid is detected in a previously dry leachate collection and removal system (including the secondary leak detection layer in the liner system), or unsaturated zone monitoring system, or if a progressive increase is detected in the volume of fluid in a LCRS [CCR Title 27 §21710(c)(3)].*

BASIS: CCR Title 27 §21710(c)(3).

I.13 *NOTIFICATION OF CLOSURE. The Discharger shall notify the Regional Board that the Unit is to be closed and provide such notice either at the same time as the California Integrated Waste Management Board (pursuant to CCR Title 27 §21110) or **180 days** prior to beginning final closure activities (for the entire Unit or portion thereof), whichever is sooner. The Discharger shall include a statement that all closure activities will conform to the most recently approved closure plan and that the plan provides for site closure in compliance with all applicable federal and state regulations. The Discharger shall notify the Regional Board within 30-days of completing all closure activities for a Unit, or portion thereof, in the case of incremental closure under CCR Title 27 §21090(b)(1)(D). The Discharger shall certify under penalty of perjury that all closure activities were performed in accordance with the most recently approved closure plan and in accordance with all applicable regulations. The Discharger shall certify that closed units shall be maintained in accordance with an approved post-closure maintenance plan.*

BASIS: CCR Title 27 §21710(c)(5).

I.14 *NOTIFICATION OF MATERIAL CHANGE. Any proposed material change in operation shall be reported to the Regional Board at least 30 days in advance of the proposed implementation of any change. This shall include, but not be limited to, all significant new soil disturbances, all proposed expansion of development, or any change in drainage characteristics at the project site. For the purpose of this Order, this includes any proposed change in the boundaries of the wetland/surface waters of the U.S. fill sites.*

BASIS: Guidance for preparation of WDRs [an appendix to Chapter 2 of the SWRCB APM on Water Quality].

I.15 *SECTION 401 WATER QUALITY CERTIFICATION REPORTING.*

a. *The Discharger shall submit copies of all necessary approvals and/or permits for the project and mitigation from applicable government agencies, including, but not limited to, the California Department of Fish and Game, U.S. Fish and Wildlife Service, and U.S. Army Corps of Engineers, prior to the start of clearing/grading.*

b. *The Discharger must submit Geographic Information System (GIS) shape files of the impact and mitigation areas within 30 days of project impacts and the mitigation area within 30 days of mitigation installation. All impact and mitigation areas shapefiles must be polygons. Two global positioning system (GPS) readings (points) must be taken on each line of the polygon and the polygon must have a minimum of 10 points. GIS metadata must also be submitted.*

c. *The Discharger must submit a report to the Regional Board within 30 days of completion of the project. The report should include as-built drawings no bigger than 11" x 17" and photos of the completed project including post-construction BMPs.*

BASIS: Title 23, Division. 3, Chapter 28 Certifications, Article 1, §3859 (a) & (a)(1) Action on an Application

I.16 *MONITORING AND REPORTING PROGRAM. The Discharger shall comply with the attached* ***Monitoring and Reporting Program No. R9-2009-0004.*** The Regional Board issues this Monitoring and Reporting Program (MRP) pursuant to Water Code section 13267 and CCR Title 27, Chapter 2. Failure to comply with this MRP may subject the Discharger to civil liability pursuant to Water Code section 13268.

BASIS: CCR Title 27 §20380 et seq. and guidance for preparation of WDRs [in Chapter 2 of the SWRCB APM on Water Quality, and Water Code sections 13267 and 13268..

I.17 ***MONITORING WELLS.*** *The Discharger or persons employed by the Discharger shall comply with all notice and reporting requirements of the California Department of Water Resources with regard to the construction, alteration, destruction, or abandonment of all monitoring wells used for compliance with this Order or with Monitoring and Reporting Program No. R9-2009-0004, as required by §13750 through §13755 of the Water Code.*

BASIS: Water Code §13750 through §13755.

I.18 *REPORT DECLARATION. All applications, reports, or information submitted to the Regional Board shall be signed and certified as follows*

a. *The Report of Waste Discharge/amendment to the Joint Technical Document shall be signed as follows:*

i. ***For a corporation*** *– by a principal executive officer of at least the level of vice president.*

ii. ***For a partnership or sole proprietorship*** *– by a general partner or the proprietor, respectfully.*

iii. ***For a municipality, state, federal, or other public agency*** *– by either a principal executive officer or ranking elected official.*

b. *All other reports required by this Order and other information required by the Regional Board shall be signed by a person designated in paragraph (a) of this provision, or by a duly authorized representative of that person. An individual is a duly authorized representative only if:*

i. *The authorization is made in writing by a person described in paragraph (a) of this provision;*

ii. *The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity; and*

iii. *The written authorization is submitted to the Regional Board.*

c. *Any person signing a document under this Order shall make the following certification:*

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals

immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

d. ***Duty to Use Registered Professionals***. *Pursuant to CCR Title 27 §21710(d), any report submitted in compliance with CCR Title 27 and this Order, which proposes a design or design change (or which notes occurrences) that might affect the WMU's containment features or monitoring systems shall be approved by a registered civil engineer or a certified engineering geologist appropriately licensed by the State of California.*

The Discharger shall provide documentation that plans and reports required under this Order are prepared by or under the direction of, appropriately qualified professionals. CCR Title 27, §20324(b) and §21090(b)(1)(C); and California Business and Professions code §6735, §7835 and §7835.1 all require that engineering and geologic evaluations and judgments be performed by or under the direction of registered professionals. A statement of qualifications and registration numbers of the responsible lead professionals shall be included in all plans and reports submitted by the Discharger. The lead professional shall sign and affix their registration stamp to the report, plan or document.

BASIS: The basis for **Reporting Requirement I.15(a, b and c**) regarding signature requirements is guidance for preparation of Waste Discharge Requirements [Chapter 2 of the SWRCB APM on Water Quality and Standard Provisions in an appendix to Chapter 2]. **Reporting Requirements I.15(d)** implements the cited applicable regulations and statutes, including: requirements to use and appropriately qualified/certified professional to design and certify the required monitoring systems [CCR Title 27 §20415(e)(1) and CFR Title 40, Part 258, §258.51(d)(2)]; and approve technical reports required by CCR Title 27, CFR Title 40, Part 258, and this Order. This requirement is also consistent with the CCR Title 27 §20310(e) and Federal requirement to use "qualified groundwater scientist", to review and certify the groundwater monitoring systems, is also found in CFR Title 40, Part 258, §258.51(d)(2).[5]

[5] For purposes of CFR Title 40, Part 258, the Federal regulations define "qualified groundwater scientist" in §258.50(g).

I.19 *REGIONAL BOARD ADDRESS. The Discharger shall submit all paper copies of reports and notifications required under this Order and other information requested by the Regional Board to:*

Executive Officer
California Regional Water Quality Control Board
San Diego Region
9174 Sky Park Court, Suite 100
San Diego, CA 92123-4340

BASIS: **Reporting Requirement I.19** identifies the current address of the Regional Board for submittal of documents.

J. NOTIFICATIONS

J.1 *PENALTIES FOR INVESTIGATION, MONITORING OR INSPECTION VIOLATIONS*

a. ***Enforcement Discretion.*** *The Regional Board reserves its right to take any enforcement action authorized by law for violations of the terms and conditions of this Order.*

b. ***Enforcement Notification.*** *The Water Code §13268 provides that any person failing or refusing to furnish technical or monitoring program reports, as required by the Regional Board, or falsifying any information provided in the monitoring reports is guilty of a misdemeanor. Under those conditions, the Regional Board may administratively impose a civil liability of up to 1,000 dollars per day of the violation.*

The Water Code commencing with Chapter 5, Enforcement and Implementation, §13350 provides that:

i. Any person who in violation of any waste discharge requirement, waiver condition, certification, or other order or prohibition issued or reissued, or amended by a Regional

Board, discharges waste, or causes or permits waste to be deposited where it is discharged, into the waters of the state, or

ii. *Any person who, without regard to intent or negligence, causes of permits any hazardous substance to be discharged in or on any of the waters of the state, except in accordance with waste discharge requirements or other provisions of this division, shall be strictly liable civilly in accordance with §13350(d) or §13350(e), or*

iii. *Persons i n violation of Water Code §13350 may be assessed administrative civil liability by the Regional Board for violating a cleanup and abatement order in an amount not to exceed $5,000 for each day the violation occurs, or on a per gallon basis, not to exceed $10 for each gallon of waste discharged. Alternatively the court may impose civil liability in an amount not to exceed $15,000 for each day the violation occurs, or on a per gallon basis, not to exceed $20 for each gallon of waste discharged. Section 13308, provides that if there is a threatened or continuing violation of a cleanup and abatement order, the Regional Board may issue a Time Schedule Order prescribing a civil penalty in an amount not to exceed $10,000 per day for each day compliance is not achieved in accordance with that time schedule.*

BASIS: Water Code §13268 and §13350.

J.3 *CCR TITLE 27 DEFINITIONS*

Definitions of terms used in this Order shall be as set forth in the California Code of Regulations, Title 27 §20164.

BASIS: CCR Title 27 §20164.

TENTATIVE MONITORING AND REPORTING PROGRAM NO. R9-2009-004

The tentative Monitoring and Reporting Program has been subdivided into the following sections for easy reference as follows:

A. Monitoring Provisions;
B. Discharge Specifications for Specific Types of Waste;
C. Detection Monitoring Specifications;
D. Response to a Release;
E. Response to Detection of Volatile Organic Constituents;

F. Response to Leachate Seep
G. Release Beyond the Facility Boundary
H. Reports to be Submitted to the Regional Board
I. Recycled Water Monitoring and Reporting
J. Reporting Schedule

Many portions of the tentative monitoring and reporting program are taken directly from the applicable state and federal regulations or from the SWRCB Administrative Procedures Manual (APM). To simplify the staff report, each section is described in the following table.

In some instances, the monitoring and reporting program may require further explanation. These items are in bold italics in the following table. The discussion for these items will be located after the monitoring and reporting program table in the staff report.

A. Monitoring Provisions	Basis
A.1 Analyses performed in certified lab	Standard provision ("*Monitoring Program and Devices*") , an appendix to Chapter 2 of the SWRCB APM on Water Quality.
A.2 Monitoring more freq. than req'd	CCR Title 27 §21720(f), §20415(e)(16) and 40 CFR §258.29.
A.3 Reporting noncompliance	Water Code §13267
A.4 USEPA SW-846	CCR Title 27 §20415(e)(5).
A.5 Calibration of monitoring eqpt.	Standard provisions, Chapter 2, SWRCB Administrative Procedures Manual.
A.6 Retain copies of mon. info	40 CFR §258.10(b), §258(g)(1)(iii), and CCR Title 27 §20420(j)(20) and §21720(f).
A.7 Monitoring records	Standard provision ("*Monitoring Program and Devices*"), an appendix to Chapter 2 of the SWRCB APM on Water Quality.
A.8 Mon. reports signatory reqts.	Chapter 2 of the SWRCB APM on Water Quality and Standard Provisions in an appendix to Chapter 2
A.9 Laboratory analyses	40 CFR §258.53(b), CCR Title 27 §20415(e)(5) and appendix to Chapter 2 of the SWRCB APM on Water Quality.
A.10 Acronym list	
A.11 Electronic reporting	CCR, Title 23, Division 3, §3890 et seq.
A.12 Upload to Geotracker	CCR, Title 23, Division 3, §3890 et seq.

B. Detection Monitoring Program	
B.1 Groundwater monitoring network	JTD, Volume II, Appendix G, Figure 5
B.2 Monitoring Parameters	40 CFR §258.54 (a) and (b)
B.3 Maintain monitoring wells	CCR Title 27 §20415(b)(3), §20415(b)(4)(A to D), §20415(e)(1) and 40 CFR §258.50(g), §258.51 (c) and (d).
B.4 GW flowrate/direction	CCR Title 27 §20415(e)(15) and 40 CFR § 258.53(d).
B.5 Sample collection	
B.6 Immiscible layer	
B.7 Field parameters	CCR Title 27 §20415(e)(13).
B.8 Surface Water Monitoring	
B.9 Sec. LCRS Monitoring	
B.10 Subdrain Monitoring	CCR Title 27 §20415(d)(2)(B) and §20420(j)(1)
B.11 Primary LCRS Monitoring	CCR Title 27 §20415(d)(2)(B) and §20420(b).
B.12 Five-Yearly COC Scan	CCR Title 27 §20420(g).
B.13 Site Inspections	CCR Title 27 §20340(h).
B.14 Waste Placement	
C. Detection Monitoring Specifications	
C.1 Compliance w/CCR Title 27	State and Federal regulations as cited in the specification
C.2 Water Quality Protection Std.	State regulations as cited in the specification.
C.3 Alternative Mon. Parameters	State and Federal regulations as cited in the specification.
C.4 Establishing Initial COC Data	CFR Title 40, Part 258, §258.50, §258.51 and §258.54; CCR Title 27 §20395, §20415(b)(1)(A), §20415(b)(1)(B), §20415(e)(6), and §20420(c).
C.5 Statistical Data Analysis	
C.6 CA Non-Statistical Data Analysis Method	CCR Title 27 §20415(e)(7) through §20415(e)(12), §20420(f) and §20420(i); and CFR Title 40, Part 258, §258.53 and §258.54.
C.7 Freq. Detections Syn. Constituent	CCR Title 27 §20415(e)(8) and other applicable regulations as cited in this specification.
C.8 Ongoing Background Well Testing	CCR Title 27 §20415(e) and other applicable regulations as cited in this specification.

D. Response to a Release	
D.1 Statistical evidence of release	CCR Title 27 §20420(j)(1), CCR Title 27 §20420(k)(1), CCR Title 27 §20415(e)(8)(E) and CCR Title 27 §20420(g).
D.2 Discovery of Release	D.2.a: CCR Title 27 §20420(k)(5) and §20425; D.2.b: CCR Title 27 §20420(k)(6); and D.2.c: 40 CFR §258.55.
D.3 Sig. Physical Evidence of Release	CCR Title 27 §20385(a)(3)
E. Response To Det. of VOCs in Background	
E.1 VOC Sampling	CCR Title 27 §20420(j)(1).
E.2 Presence of VOCs	CCR Title 27 §20420(j)(1).
E.3 VOCs from Other Source	CCR Title 27 §20420(m) and §21720(b).
E.4 VOCs from WMU	CCR Title 27 §20420(k) and CFR Title 40 §258.55.
F. Response to Leachate Seep	
F.1 Reporting of Leachate Seep	CCR Title 27 §20385(a)(3)
G. Release Beyond the Facility Boundary	
G.1 Affected Person Notification	CFR Title 40 §258.55(g)(1)(iii).
G.2 Timeframe for Notification	CFR Title 40 §258.55(g)
G.3 Change in boundary of release	CFR Title 40 §258.55(g)
G.4 Copy of notification to RB	CCR Title 27 §20420(j)(1).
G.5 Facility operating record	CFR Title 40 §258.55(g) and CCR Title 27 §20420(j)(1).
H. Reports to be Submitted to the RB	
H.1 Transmittal Letter	SWRCB APM on Water Quality and Standard Provisions in an appendix to Chapter 2 and Reporting Requirement I.16.
H.2 Semi-Annual Report	
H.3 Annual Summary Report	
H.4 Mitigation Report	Title 23, Division. 3, Chapter 28 Certifications, Article 1, §3859 (a) & (a)(1) Action on an Application.

H.5 Leachate Report	CCR Title 27 §20340(d) and §20340(h).
H.6 COC Report	CCR Title 27 §20415(e), §20420(g), and CFR Title 40 §258.54.
H.7 CQA Plan	CCR Title 27 §20323
H.8 CQA Report	CCR Title 27 §20324 and §21760.
H.9 Final Engineering Specifications	CCR Title 27 §21760(a)(1).
H.10 BMPs	CCR Title 27 §20365.
H.11 Water Replacement Contingency Plan	
H.12 Contingency Plan for NPDES Permit	Provision H.19
H.13 Plan for GW Monitoring Network Expansion	
H.14 Workplan for Surface Water Monitoring	CCR Title 27 §20415(c)(2)(B).
I. Recycled Water Monitoring and Reporting	
I.1 Annual Recycled Water Report	
I.2 Recycled Water Monitoring Constituents	
J. Reporting Schedule	Monitoring and Reporting Program No. R9-2009-004.

A. MONITORING PROVISIONS

A.10 *A list containing definitions of terms and acronyms are contained in **Appendix A** attached to this **M&RP**.*

BASIS: For the convenience of the reader, a glossary of definitions and acronyms are provided in Appendix A to the M&RP.

B. DETECTION MONITORING PROGRAM

B.5 *For any given medium, samples shall be collected (1) from all Compliance Monitoring Points to satisfy the data analysis requirements for a given Reporting Period; (2) during the latter third of the Reporting Period within a span not exceeding **30 days**; and (3) in a manner that ensures sample independence to the greatest extent feasible. Sample procurement shall be carried out as late in the Reporting Period as feasible, considering the time needed to analyze the samples, analyze the resulting data, and to prepare and submit the monitoring report within **30 days** after the end of the Reporting Period.*

BASIS: This requirement is based upon the experience of the Regional Board staff and the following rationale:

1. To limit short-term temporal effects and impacts, upon analytical results in water samples, under local groundwater conditions.

2. To limit effects from seasonal variation upon analytical results in water samples, under local groundwater conditions.

   Following the time limits specified in this requirement helps to ensure that groundwater data are comparable.

B.6 *Prior to sampling monitoring wells, the presence of a floating immiscible layer in all wells shall be evaluated at the beginning of each sampling event. This shall be done prior to any other activity that may disturb the surface of the water in a well, e.g., water level measurements. If an immiscible layer is found, the Discharger shall notify the Regional Board by telephone and facsimile within* ***24 hours***.

BASIS: This requirement is based upon the experience of the Regional Board staff and the following rationale:

1. The presence of an immiscible layer indicates the presence of a constituent/compound at a concentration that exceeds its solubility limit in groundwater.

2. The presence of an immiscible layer on the surface of the groundwater may interfere with the normal monitoring of dissolved constituents in groundwater samples.

3. In order to readjust sampling procedures and/or protocols, the presence of an immiscible layer must be determined prior to collecting groundwater samples from a well.

4. The presence of an immiscible layer may indicate a large release of wastes/waste constituents related to a particular waste or waste stream that poses a significant threat to beneficial uses of water and/or an endangerment to human health or the environment, so

the Discharger must notify the Regional Board pursuant to the Provisions and Reporting Requirements of this Order.

B.8 *Surface water monitoring shall be conducted in compliance with general monitoring requirements specified in CCR Title 27, §20415(c)(1) through (2)(B). Surface water monitoring shall be conducted* ***quarterly*** *at SLRSW-1 (upgradient) and sampling stations SLRSW-2 and GCSW-2 (downgradient) (when there is sufficient water to collect a sample). Surface water samples shall be analyzed for all the monitoring parameters specified in* ***Detection Monitoring Program B.2****. The locations of these sampling points are shown on* ***Attachment No. 1*** *to this M&RP.*

BASIS: CCR Title 27 §20415(c) and §20420. The Discharger must revise and enhance the surface water monitoring system to comply with the applicable detection monitoring performance requirements of CCR Title 27 §20415 (c)(2)(B).

The Discharger must provide the Regional Board with a workplan to revise and enhance the surface water monitoring system to comply with the applicable detection monitoring performance requirements of CCR Title 27 §20415(c)(2)(B).

B.9 *Secondary Leachate Collection and Removal System (LCRS): Leak Detection Monitoring*

Once the WMU is in operation and the secondary LCRS is generating liquid, the liquid in the sump shall be monitored (with a properly calibrated electric probe for pH and electric conductivity to monitor for changes that indicate the liquid is leachate as opposed to rainwater or construction water) ***[weekly until leachate is indicated]*** *(also metered during pumping). The Discharger shall ensure that all liquid removed from the secondary LCRS are properly managed and disposed in compliance with all applicable Federal, State and local requirements.*

a. *Once the liquid in the secondary LCRS sump is established as leachate:*

i. *The Discharger shall notify the Regional Board* ***within three days*** *that liquid was first observed.*

ii. *The Discharger shall implement the same monitoring and reporting for leachate constituents, CFR Title 40, Part 258 Appendix II constituents and MTBE, as required for leachate samples collected from the primary LCRS in* ***Detection Monitoring Program B.11****.*

b. *The Discharger shall implement the following requirements for management of landfill gas in the secondary LCRS:*

i. *Vapor pressure, methane, carbon dioxide and oxygen shall be monitored at no less than three locations in the secondary LCRS piping [****weekly****].*

ii. *If landfill gas is detected in the secondary LCRS, vapor samples will be collected in a SUMMA canister and analyzed for volatile constituents using U.S. EPA Method TO-14 [quarterly].*

iii. *Pressure changes in the secondary LCRS will be monitored every 3 minutes for the first 3 hours that landfill gas is extracted from the primary LCRS.*

iv. *Results from management of landfill gas in the secondary LCRS shall be summarized, tabulated and discussed in each semi-annual monitoring report.*

BASIS: CCR Title 27 §20415(d)(2)(B) and §20420. In addition, CFR Title 40, Subpart N, §264.301(c)(4), §264.302 and §264.303(c).

Monitoring and reporting requirements, for a "leak detection layer", adopted by the Central Valley Regional Board (Region 5) included at the Kiefer Class III Landfill (Order R5-2002-0187). The Order and Monitoring Program are available on the Region 5 web site at: http://www.waterboards.ca.gov/centralvalley/adopted_orders/Sacramento/R5-2002-0187.pdf

B.14 *Waste Placement*

The Discharger shall submit a waste placement map with the semiannual report. The map shall show where waste has been disposed of since the

previous monitoring report was submitted. The Discharger shall also state the quantities and types or waste disposed at the WMU since the last monitoring report was submitted.

BASIS: This requirement is included in this Monitoring and Reporting Program to ensure that wastes are discharged in compliance with **Discharge Specification B.3** and **Prohibition A.4** of this Order.

C. DETECTION MONITORING SPECIFICATIONS

C.5. *Statistical Data Analysis Methodology*

a. *Intra-well Comparisons are Standard – Except as otherwise provided in **Detection Monitoring Specification C.5.a.i.3 (a & b),** intra-well comparison methods shall be used at all compliance wells for all MPars that are subject to data analysis under this Order and shall be used to test individual "background" (e.g., upgradient) wells regarding unexpected increases in man-made constituents (e.g., VOCs) as follows:*

i. *Pre-Detection Background Data Set – Initially, except as otherwise provided in **Detection Monitoring Specification C.5.a.i(3)(a) and (b) or C.7**, for each given MPar at a given downgradient monitoring well (well/MPar pair), the proposed background data set shall consist of all validated data from that compliance well and parameter, for the period of four years after adoption of this Monitoring and Reporting Program. The Discharger shall collect quarterly samples for a period of four years. Then, every two years as part of the annual monitoring summary report [see CCR Title 27 §20415(e)(14)], the Discharger shall add data to the background data set for each well/MPar pair after validating (via a method approved by the Regional Board), that the new data does not contain results indicating an increase over the existing background data concentrations. The Discharger shall retire the well/MPar's oldest two years of background data (after 16 background data points have been collected), thereby producing a data set covering the then-previous four years (16 data points). The Discharger shall validate the proposed intra-well background data set as follows for each MPar at each well (initially) or, subsequently, at a new well or for a new MPar at an existing*

well. The Discharger shall report the validated or updated background data set, for each affected well/MPar pair, in the next scheduled monitoring report. Initial background data validation shall be as follows:

(1). Accelerated Background Data Procurement – if there are less than 16 post-pre-detection monitoring data points available, for a given MPar at any compliance well, the Discharger shall implement the accelerated data procurement effort described in ***Detection Monitoring Specification C.4*** *to achieve that minimum background sample size (16 data points per well) prior to initiating the intra-well background data set validation procedure described below;*

(2). Validate Upgradient Data for Synthetic MPars – for any MPar that is a non-metallic Appendix II constituent (i.e., artificially produced or synthetic), the initial intra-well data validation, under ***Detection Monitoring Specification D.5.a.i(3),*** *shall utilize only data from those upgradient (or cross-gradient) compliance wells whose post-pre-detection monitoring data, for that constituent, exceeds the constituent's method detection limit in less than 10% of the well's data. Such synthetic constituents should not be detectable at upgradient wells except in error (around 1% of the time) or because the constituent comes either from the WMU or from another source. For any upgradient well rejected pursuant to this paragraph, for a given MPar, where the Discharger has not already explained the constituent's presence at that well to the satisfaction of the Regional Board, the Discharger shall conduct an investigation under* ***Detection Monitoring Specification C.7****. If there are one or more rejected background wells, the Discharger shall use their data to validate each well/MPar pair's proposed intra-well background data set, under* ***Detection Monitoring Specification C.5.a.i(3)****; and*

(3). Intra-well Background Validation for New Well/MPar Pairs – for all compliance wells initially and,

subsequently, for new wells or a new MPar at an existing well, to determine whether the existing data for that MPar at the well can be used as its intra-well comparison background data set:

(a). Commonly Quantified Constituents – for determining the "naturally occurring" or "background" ground water conditions (i.e., pre-landfill conditions) of any MPar that may commonly be detected in ground water at concentrations exceeding the constituent's PQL, the Discharger shall validate the proposed intra-well data from each compliance well by comparing that well's data set to a pooled box-and-whiskers plot, for that particular MPar, from all "background" wells (i.e., upgradient or cross-gradient wells) completed in the same water bearing zone of the ground water aquifer. If any such constituent's median concentration (for a downgradient well) exceeds the pooled background plot's 75th percentile (the upper boundary of the box in a box-and-whisker's plot), then that compliance well's existing data cannot be used as the intra-well comparison background data set for that well/MPar pair. That well/MPar shall be tested, beginning no later than the next scheduled reporting period, using an inter-well comparison data analysis method [against the applicable background well(s)], that the Regional Board agrees meets the requirements of CCR Title 27 §20415(e)(9). For wells/MPar pairs whose existing data's median is less than the pooled background plot's 75th percentile, the existing data shall be used as the initial background data set for intra-well comparisons for that well/MPar pair; or

(b). Rarely Quantified Constituents – for determining the "naturally occurring" or "background" ground water conditions (i.e., pre-landfill conditions) for an MPar that would

rarely be detected in ground water (e.g., non-metallic Appendix II constituents), the Discharger shall identify the highest value from the pooled data set from all background wells that have passed validation under ***Detection Monitoring Specification C.5.a.i(2)*** *or, in a case where all applicable upgradient well data is non-detect, the method detection limit (MDL). The Discharger shall use this value as a basis of comparison to validate the data points in the proposed intra-well background data set. The initial intra-well background data set for that downgradient well shall consist of all data points in the proposed intra-well background data set that are less than this value.*

ii. ***Post-Detection Background Data Set —*** *For any constituent that is in "tracking mode" [**Detection Monitoring Program Specification C.5.e.ii**], at a given well, its background data set shall be the background data set that was in effect when the well/MPar pair exhibited a measurably significant increase.*

b. *Performance Standards – All data analysis methods (statistical or non-statistical) shall meet the applicable requirements of CCR Title 27 §20415(e)(9).*

c. *Retest is Part of the Method – If an approved data analysis method provides a preliminary indication that a given MPar has displayed a measurably statistically significant increase in concentration at a given well, then the Discharger shall perform a discrete retest, in accordance with CCR Title 27 §20415(e)(8)(E) for verification. The retest is part of the data analysis method; therefore, a measurably significant increase exists only if either or both of the retest samples validate the preliminary indication.*

d. *Limited Retest Scope – For any given ground water monitoring point, the Discharger shall perform the verification procedure only for those MPars that have shown a measurably significant increase in that well for that reporting period.*

e. Water Quality Monitoring Approach – The monitoring approach used for each well/MPar pair shall be controlled by whether the MPar has exhibited a measurably significant increase in that well. Therefore, the Discharger shall monitoring each well/MPar pair in one of two modes, as follows:

i. Detection Mode – For an MPar that has not produced a measurably significant increase at that well, the purpose of monitoring for that well/MPar pair is to watch for the MPar's arrival at that well in a concentration that triggers a measurably significant indication of a release using an appropriate statistical or non-statistical data analysis method; or

ii. Tracking Mode - For an MPar that has produced a measurably significant increase at that well, the purpose of monitoring for that well/MPar pair is to track changes in the concentration of the MPar at that well via an evolving concentration-versus-time plot.

*f. Detection Mode Data Analyses – The following applies to all detection mode data analyses (i.e., this paragraph does not apply to the scans required under **Detection Monitoring Program B.11 and B.12**):*

*i. MPars Readily Detectable in Background – At any given monitoring point, the Discharger shall apply an approved statistical analysis for each detection mode MPar that exceeds its respective MDL in **10% or more** of the applicable background data set. For each well/MPar pair (separately), an approved statistical analysis is a method, other than Analysis of Variance (**ANOVA**), that the Regional Board agrees meets the performance standards of CCR Title 27 §20415(e)(9). If using SANITAS®, the Discharger shall use the "CA Standards" and "CA Retest" settings. Otherwise:*

*(1) For any such well/MPar pair that, as of the effective date of this Order, does not have an approved statistical analysis method, the Discharger shall propose and substantiate an appropriate statistical method within **30 days** of the adoption of this Order;*

(2) *For any new MPar that qualifies for statistical analysis by meeting the above 10% rule at a given well, the Discharger shall propose and substantiate an appropriate statistical method for that well/MPar pair as part of the background data validation under* ***Detection Monitoring Specification C.5.a.i.(3).***

ii. *MPars Not Readily Detectable in Background – For any monitoring point at which one or more MPars exceed their respective MDL in* ***less than 10%*** *of the applicable background data set, the Discharger shall analyze the data for these MPars via the California Non-statistical Data Analysis Method (CNSDAM) test described in* ***Detection Monitoring Specification C.6.***

BASIS: This specification is based upon consideration of the following factors/information:

1. This M&RP implements the provisions for statistical analysis of groundwater monitoring data found in CCR Title 27 §20415(e)(7) through §20415(e)(12), §20420(f) and §20420(i); and CFR Title 40, Part 258, §258.53 and §258.54.

2. Literature provided to the Regional Board by the SWRCB staff on intrawell groundwater monitoring statistics (Horsey, Carosone-Link, Sullivan and Loftis, Intelligent Decision Technologies).

3. Application of intra-well statistical methods for detection-monitoring in groundwater have been adopted, in monitoring and reporting programs, by the Regional Board for the following MSW Landfills:

   a. San Marcos Landfill (Order No. R9-2003-0003) available on-line at: http://www.waterboards.ca.gov/sandiego/orders/orders-03.html

b. Prima Deshecha Landfill (Order No. R9-2003-0306) available on-line at: http://www.waterboards.ca.gov/sandiego/orders/orders-03.html

c. Anza Sanitary Landfill, Riverside County (Order No. R9-2005-0183) at: http://www.waterboards.ca.gov/sandiego/orders/orders-05.html

4. Application of intra-well statistical methods for detection-monitoring in groundwater have been adopted by other Regional Boards, in monitoring and reporting programs, for MSW Landfills:

a. Sunshine Canyon Landfill (Order No. R4-2003-0155, Region 4 – Los Angeles Regional Board http://www.waterboards.ca.gov/losangeles/html/permits/general_permits.html); and

b. El Sobrante Landfill (Order No. 01-53, Region 8 – Santa Ana Regional Board http://www.waterboards.ca.gov/santaana/html/adopted_orders.html

H. REPORTS TO BE SUBMITTED TO THE REGIONAL BOARD

H.2 *Semi-Annual Report*

The semi-annual report shall contain, but not be limited to, a compliance evaluation summary of the ground water data obtained. The summary shall include the following information:

a. Monitoring Parameters;
b. Detection limit of monitoring equipment;
c. Measured concentrations of MPars determined from samples collected during the current sampling event;
d. A map (or copy of an aerial photograph) which indicates the locations of observation stations, Monitoring Points, and Compliance Wells, and ground water flow rate/direction and graphical presentation (e.g., arrow on a map);

e. Monitoring well information, method and time of ground water level measurement, and a description of the method of purging used both before and after sampling;

f. Sampling information, type of pump used and its vertical placement, detailed description of sampling procedure, QA/QC;

g. Leachate and run-on/off control statement regarding the condition and performance of any leachate monitoring and control facilities and of the run-on/off control facilities;

h. Site inspection reports;

i. Waste placement and type – the quantity and types of wastes discharged and the locations in the WMU where the waste has been placed since submittal of the last monitoring report;

j. Measured concentrations of MPars determined in liquid or vapor samples collected from secondary leak detection system.

k. The total volume of leachate collected each month, reported separately as volume from the Primary LCRS and volume from Secondary LCRS, since the last semiannual monitoring report[6], and

l. A summary and tabulation of monitoring data and include a written technical evaluation of vapor/gas management from the Primary and/or Secondary LCRS.

H.3 *Annual Summary Report*

The annual summary report, covering the previous monitoring year, shall contain the following information:

a. For each compliance-monitoring well, the Discharger shall submit a graphical display [per CCR Title 27 §20415(e)(14)] for all data collected within at least the previous five calendar years. Each graph shall plot the concentration of one or more constituents over time for a given monitoring point, at a scale appropriate to show trends or variations in water quality. The graphs shall plot each datum, rather than plotting mean values. For any given constituent or parameter, the scale for background plots shall be the same as that used to plot downgradient data. On the basis of any aberrations noted in the plotted data, the Regional Board may direct the Discharger to carry out a preliminary investigation, the results of which will determine whether or not a release is indicated. The report shall include analysis of trends that have been identified over the last monitoring year, and analysis of any newly identified trends, significant changes in a known trend, or trend reversals

[6] Pursuant to CCR Title 27 §20340(h).

identified in the data collected for groundwater, surface water (including seeps and springs), and vadose zone monitoring points (subdrains, lysimeters, or LFG);

b. *A comprehensive discussion of the compliance record, and of any corrective actions taken or planned, which may be needed to bring the Discharger into full compliance with this Order;*

c. *A written summary of the monitoring results and monitoring system(s), indicating any changes made or observed since the previous annual report;*

d. *A topographic map at appropriate scale, showing the direction of ground water flow at the WMU and showing the area in which waste filling has been completed in the previous year;*

e. *A written summary of monitoring results and monitoring system(s) indicating any changes made or observed since the previous report.*

f. *A written evaluation of the effectiveness of the leachate control/ monitoring systems, pursuant to CCR Title 27 §20340(b, c, & d). This evaluation may be submitted under separate cover;*

g. *A copy of the Storm Water Pollution Prevention Plan, or as amended, under a separate cover; and*

h. *A complete historical tabulation of monitoring data for vapor/gas in the Primary and/or Secondary LCRS, including a written technical evaluation and recommendations for management of vapor/gas from the Primary and/or Secondary LCRS.*

BASIS: The requirements of **Reports to be Filed with the Regional Board H.2 and H.3** are based upon the following considerations, applicable requirements and the need for the Regional Board to ensure compliance with this Order:

1. Detection Monitoring Program requirements in CCR Title 27 §20420.

2. Adequacy of compliance with the provisions for groundwater monitoring systems as required by applicable subsections of CCR Title 27 §20415.

3. Compliance with reporting requirements of Detection Monitoring groundwater provisions of the applicable subsections of CCR Title 27 §20415(e)(13), §20415(e)(14), and §20415(e)(15).

4. Reporting of leachate volume collected each month since the last semiannual monitoring report, pursuant to CCR Title 27 §20340(h).

5. Adequacy of compliance with Detection Monitoring groundwater provisions of applicable sections of CFR Title 40, Part 258 §258.50, §258.51, §258.53 and §258.54.

6. Compliance with reporting requirements of Detection Monitoring groundwater provisions of applicable sections of CFR Title 40, Part 258, §258.54.

H.11 *Pursuant to **Provision H.12** of this Order, the Discharger must provide the Regional Board with a "Water Replacement Contingency Plan" to provide replacement water to all private and public well owners, and other parties affected by a release of wastes or waste constituents from the WMU.*

BASIS: The requirements of **Reports to be Filed with the Regional Board H.11** are based upon the following considerations and requirements:

- E*xisting g*uidance on performing analysis of Wellhead Protection Areas published by U.S. Environmental Protection Agency as: "*Delineation of Wellhead Protection Areas in Fractured Rocks*", publication number EPA 570/9-91-009, dated June 1991; and "*Guidelines for Delineation of Wellhead Protection Areas*", dated June 1987.

- Written comments provided by the SWRCB (SWRCB Resolution No. 93-42) for the Campo Indian Reservation Landfill. The SWRCB found that: "*The requirement to provide an alternative water supply of the same quality and quantity shall extend, for any and all uses, to any surrounding or adjacent property owners whose water supply may be adversely impacted by the construction, operation or maintenance of the landfill.*"

- The proximity of a groundwater dependent community and aspects of the hydrogeology at Gregory Canyon are similar to those at the Campo Landfill.

H.13 *Pursuant to **Finding No. 17** of this Order, the Discharger shall provide the Regional Board with a plan for expanding and improving the coverage of the existing groundwater monitoring network. The required plan shall include the following minimum information:*

a. *Additional well locations and analyses to improve the groundwater monitoring network for the weathered fractured rock aquifer and meet the minimum performance requirements of CCR Title 27 §20415(b)(1)(A and B), §20415(b)(4); and §20420(a and b).*

b. *Additional well locations and analyses to improve the groundwater monitoring network for the unweathered fractured rock aquifer and meet the minimum performance requirements of CCR Title 27 §20415(b)(1)(A and B), §20415(b)(4); and §20420(a and b).*

c. *A plan for conducting an evaluation and reporting results for an analysis of wellhead protection areas[7] for all known existing water supply wells located inside the property boundary and water supply wells located within 2,300 feet of the facility boundary.*

d. *A plan for performing any additional technical analyses, and/or collecting additional data from field investigations, as may be required for the Discharger to complete the analysis/report required by H.12(c) above, including additional evaluations of site-specific geological, geophysical and/or water quality/geochemical data as*

[7] Guidance on performing analysis of Wellhead Protection Areas is published by U.S. Environmental Protection Agency as: "Delineation of Wellhead Protection Areas in Fractured Rocks", publication number EPA 570/9-91-009, dated June 1991; and "Guidelines for Delineation of Wellhead Protection Areas", dated June 1987.

necessary. The Discharger shall use this, and other relevant information, to provide the Regional Board with an acceptable technical demonstration that the enhanced groundwater monitoring network will meet all the required performance criteria for a Detection Monitoring Program [see CCR Title 27 §20415(b)(1)(A and B), §20415(b)(4); and §20420(a and b)] for each of the aquifer system (e.g., weathered fractured rock aquifer, unweathered fractured rock aquifer, and alluvial aquifer).

e. *Report the results from all tasks required to comply with* ***Reports to be Filed with the Regional Board H.12(c) and H.12(d)*** *pursuant to the* ***Reporting Schedule I.1*** *of this M&RP.*

BASIS: The current groundwater monitoring system is comprised of 26 wells, some of the existing wells are constructed across geologic contacts so as to limit their ability to determine compliance with the federal performance requirements of CFR Title 40, Part 258, §258.51(a)(2), and the state requirements in CCR Title 27 §20415(b)(1)(B)(1-5).

Considering the geologic complexity of the local aquifer system(s), the myriad of preferential pathways that are likely to exist (*e.g.*, fractures, joints, lithologic contacts and zones of weathering within the bedrock aquifer), and the sensitive beneficial uses of groundwater located in proximity to the Unit; the Regional Board finds that the current groundwater monitoring system and is too limited in its ability *"to provide the best assurance of the earliest possible detection of a release from the Unit"*, and attain the objectives required for Detection Monitoring Programs by CCR Title 27 §20415(1)(a) and CCR Title 27 §20415(b)(1)(B) and CFR Title 40, Part 258, §258.51.

Under the provisions of CFR Title 40, Part 258, §258.50(c)(4), *"New MSWLF units must be in compliance with the groundwater monitoring requirements specified in § 258.51 before waste can be placed in the unit."* It is not clear that the current groundwater monitoring network meets the applicable minimum performance requirements cited in this finding. The current groundwater monitoring system must be further evaluated, expanded and improved to overcome deficiencies identified in this finding and comply with the minimum performance requirements cited in the finding.

I. RECYCLED WATER MONITORING AND REPORTING

I.1 *The discharger shall submit an annual recycled water report containing the following information:*

a. *Name of Agency and Facility that supplied the recycled water during the reporting period.*

b. *The total volume of recycled water supplied during the reporting period.*

c. *An assessment of compliance of the discharge of recycled water with Discharge Specifications for Specific Types of Waste, C.5.b of Order No. R9-2009-0004 by demonstrating that the onsite reverse osmosis (RO) treatment unit was operating effectively during the reporting period to remove, if necessary, the annual loading of constituents in the recycled water supplied to the landfill that exceeded the annual limitations. The assessment shall apply the following formula, using the monitoring data collected pursuant to Requirement I.2.*

$$Q_B C_B \geq Q_R C_R - Q_R C_L \text{ or}$$
$$C_B \geq [Q_R / Q_B] [C_R - C_L]$$

where: Q_R *is the volume of recycled water supplied during the year of the reporting period (million gallons/year)*

C_L *is the limitations specified for the constituents listed in Table X*

C_R *is concentration of the constituents with prescribed limitations in the recycled water supplied during the reporting period*

Q_B *is the volume of brine hauled from the site during the reporting period (million gallons/year)*

C_B *is the concentration of the constituents in the brine hauled from the site during the reporting period*

d. *The results of the monitoring conducted in accordance with Discharge Specifications for Specific Types of Waste C.5.b with the applicable supporting information as specified under Monitoring Provision A.7.*

e. *A statement certifying the status of compliance of the discharge with Reports to be Submitted to the Regional Board H.1.b. The statement shall verify that the Discharger has reviewed the requirements, shall identify any issues related to these requirements, and shall discuss how these issues were addressed related to these requirements during the reporting period.*

I.2 *For the constituents/parameters listed in the following table and at the frequency specified, the Discharger shall monitor the quantity (Q_R) and quality (C_R) of the recycled water supplied to the site and/or submit monitoring data for the specified constituents that was collected during the reporting period by the Agency supplying the recycled water, and shall monitor the quantity (Q_B) and quality (C_B) of the brine hauled from the site.*

CONSTITUENT/ PARAMETER	UNIT	TYPE OF SAMPLE	SAMPLING FREQUENCY	REPORTING FREQUENCY
Flow Volume	Unit	NA[a]	NA[b]	Annually
Total Dissolved Solids	mg/L	Grab	Quarterly[c]	Annually
Nitrate Nitrogen (as N)	mg/L	Grab	Quarterly[c]	Annually
Chloride	mg/L	Grab	Quarterly[c]	Annually
Sulfate (SO_4)	mg/L	Grab	Quarterly[c]	Annually
Iron (Fe)	mg/L	Grab	Quarterly[c]	Annually
Manganese (Mn)	mg/L	Grab	Quarterly[c]	Annually

[a] Flow volume may be measured by number and volume of liquid in tanker trucks
[b] Flow volume shall be recorded monthly and reported annually
[c] Quarterly sampling or at least four samples per year that are scheduled based upon volume of demand.

BASIS: The information required to be submitted under this section is necessary to determined compliance with Discharge Specification C.5, *Recycled Water*. The name of the recycled water agency and facility (as required under Directive I.1.a) will document that the source of recycled water meets Title 22 requirements as specified by WDR Requirement C.5.a. The volume of recycled water (Directive I.1.b) is necessary to assess the cumulative loading of the discharge and the mass balance (Directive I.1.c) is necessary to determine compliance with WDR Requirement C.5.b. Data collected under Directive I.2 and reported under Directive I.1.d is necessary to verify the mass loading calculation reported under Directive I.1.c and the information reported under Directive I.1.e will verify compliance with the recycled water user requirements prescribed by C.5.c-v.